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MUSEUM NEWS AND QUARTERLY

ildren's Museum Bulletin. October, 1902–March, 1904. *Out of*

ildren's Museum News. April, 1904–March, 1905. *Out of Print.*
Series] October, 1913, to date. Monthly from October to May.

ne Museum News, issued monthly from October to May. Volumes
2, 1905–1907. *Out of Print.* Volumes 3–8, 1907–1913. Gratis
application to the Director, Central Museum, Eastern Parkway,
lyn, N. Y.

ne Brooklyn Museum Quarterly. Volume 1, March, 1914, to date.
per volume.

ne following publications are issued at irregular intervals, and
nt the original researches of the Curators and Assistants of the
um, and work by specialists based upon the Museum Collections.

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THE BROOKLYN INSTITUTE OF ARTS AND SCIENCES

BROOKLYN MUSEUM
SCIENCE BULLETIN
VOL. 3, NO. 3

REVISION OF THE NEW WORLD SPECIES OF THE TRIBE DONACIINI OF THE COLEOPTEROUS FAMILY CHRYSOMELIDAE

BY
CHARLES SCHAEFFER

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Published by the
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REVISION OF THE NEW WORLD SPECIES OF THE TRIBE DONACIINI OF THE COLEOPTEROUS FAMILY CHRYSOMELIDAE.

By Charles Schaeffer.

The present revision is the outcome of a critical study of a few species of *Donacia* which have been known to be very troublesome and originated in an attempt to name a few of these in the Museum collection together with others which were received for identification. From time to time allied species were investigated with interesting results and the work finally continued until all the species were taken up. As only two Donacias were recorded from below our southern border and the West Indian Islands, these are included in the present revision and likewise *Haemonia*, the only other genus of the tribe Donaciini occurring in America with only one variable species.

The North American species of *Donacia* are very variable and unfortunately in most of the characters useful in distinguishing species and the study of them was at times laborious as a great number of specimens of most of the species had to be examined and studied to ascertain how far the variations go and also to become thoroughly acquainted with the different species. In addition carefully reading the numerous original descriptions of American Donacias described by French, English, German and American authors has taken a good deal of time. However, the result has been gratifying as a number of mistakes in the identification of some of the species were found and could be corrected.

Up to the time the present revision was undertaken seventy-seven names have been proposed for North American Donacias. Of these Lacordaire heads the list with twenty-one; Leconte nineteen; Kirby seven; Newman three; Say and Melsheimer each six; Olivier, Germar, Ahrens and Suffrian each two; Kunze, Coupez, Crotch, Leng, Knab, Blatchley and Weise each one.

Of these seventy-nine names twenty-seven are recognized as valid species or varieties in our recent catalogue, the rest are relegated to

synonymy. However, after exhaustive studies of the original descriptions and a large amount of material of our species, also by comparison of specimens with types of species as far as they are in existence here or in England, I am forced to restore ten of the synonyms to specific or varietal standing. Of the remaining names placed at present in synonymy a few more are wrongly listed and four of these take precedence over the names by which they are at present known. A few other names remain synonyms but of different species than those with which they are listed at present. To these several new species and varieties are added which brings the number of species of Donacia known to occur in the New World to forty-five with sixteen varieties.

Plateumaris is here treated as a subgenus. Thomson made it a genus and it is accepted as such in Europe. This course is apparently justified as far as the European species are concerned but not for the American species. The latest paper on *Donacia* by the late Edmund Reitter, 1920, gives the following characters for *Donacia* and *Plateumaris:*

Legs slender, tibiae at apex narrow, rarely the anterior tibiae feebly dilated near apex. Body flat or feebly convex. Mandibles short, mostly covered by the labrum. The first abdominal segment longer than the remaining segments. Third tarsal joint longer than wide, deeply emarginate and scarcely dilated..... *Donacia.*

Legs shorter, stouter, all or only the anterior tibiae dilated into a distinct tooth. Body convex. Mandibles longer, extending below the labrum. The first abdominal segment as long as the remaining segments. Third tarsal joint shorter, wider, not longer than wide. The upper part of elevated sutural bead before apex sinuate, leaving the lower part exposed..... *Plateumaris.*

With the exception of the sinuate sutural margin of elytra some American species of *Donacia* possess one or the other character of *Plateumaris* as given above. This is plainly shown in the list of the Donaciini (Donacidae) in Genera Insectorum by Jacoby and Clavareau where *aequalis, distincta, torosa* and *pubescens* are listed under *Plateumaris.* These are true Donacias and undoubtedly were unknown to the authors who placed them there on characters found in the descriptions of these species.

The only American species with the sutural margin of elytra sinuate near apex, besides those which are strictly referable to *Plateumaris,* is *harrisi.* This species is rather aberrant and can not very well be placed in either of the two subgenera. It is in some way intermediate between the two and reduces the strength of the only remaining character of *Plateumaris*—the sinuate sutural margin near apex of elytra.

The sinuate sutural margin of elytra is said by Mr. Leng in his "Review of the Donacia of Boreal America" [1] to be present also in *distincta* but that is a mistake. The *distincta* of his revision, however, is not Leconte's species but *biimpressa* Melsh. Both, the true *distincta* of Leconte and *biimpressa* Melsh., have the sutural margin straight to apex as in the rest of the species of the subgenus *Donacia*.

The species of the subgenus *Plateumaris* are more uniform and differ less in form from each other than the species of the subgenus *Donacia* and I have made several attempts to find additional characters which would justify the generic standing of *Plateumaris* but did not succeed in this. At one time I thought I had found these in the absence of a pubescent spot near the anterior coxae and the difference of the vaginal plates of the females of *Plateumaris* from those of the subgenus *Donacia*. However, in *diversa*, a new species of *Plateumaris*, there is a pubescent spot near the anterior coxa, though not as distinct as in most of the species of the subgenus *Donacia*. The vaginal plates in the single female of the European *consimilis* before me are sufficiently visible to show that they are widely different from the usual type seen in *Plateumaris* and are more nearly like those seen in some species of the subgenus *Donacia*, that is, they are rather wide, both nearly equal in length and width, and broadly rounded at apex, but not narrowed triangularly into a sharp point. In *pubicollis*, a species of the subgenus *Donacia*, the lower plate, though wider than in the majority of the species of *Plateumaris*, is distinctly triangularly converging towards apex into an acute point, which apparently indicates the same mode of oviposition as in *Plateumaris*. In regard to the generic difference between the larvae of *Donacia* and *Plateumaris*, Dr. Adam G. Boving on p. 20 of his valuable paper "Natural History of the Larvae of Donaciinae" [2] says: "Respecting the classification of the larvae within the Donaciinae tribe, it might be anticipated that the specific, well-marked difference between the imagines of the *Haemonia* and *Donacia* also exists between their larvae. And, inversely, the fact that Thomson had only been able to point out feebly pronounced differences between the imagines of *Donacia* and those of the *Plateumaris* genus established by him might lead to the conjecture that it would be difficult to distinguish between the larvae of these two genera; yet, the case is entirely reverse, the *Haemonia* larvae not being distinguishable from the *Donacia* larvae, whereas *Plateumaris* larvae and *Donacia* larvae present rather numerous and

[1] Trans. Am. Ent. Soc. XVIII (1891).

[2] Mitteilungen aus dem Süsswasserlaboratorium Fredericksdal by Lyngby, No. VII, 1910.

well-marked mutual differences." However, as only the larvae of the European *P. nigra, affinis* and *micans* were known to Dr. Boving, he is of the opinion "that at some day intermediate forms between them and the other Donaciinae larvae will perhaps be found, so that this genus, too, cannot be maintained as to the larvae."

In consideration of all these facts and being unable to point out better and stronger characters, *Plateumaris* is treated as a subgenus of *Donacia*.

The vaginal plates of the females of the subgenus *Donacia* are rarely exposed and I did not find the time to extract and study them, except of a few species, but as far as I have seen they seem to offer good additional characters for separating at least some of the species. They are generally of softer texture than those of the subgenus *Plateumaris* but by extracting them are easily distorted. Both plates are usually parallel and of equal width and length, similar to those of *harrisi* figured on plate V, fig. 16, and are generally arcuate or truncate at apex. Apparently they cannot be used as an ovipositor and the females of most of the species very likely lay their eggs in the flowers, on the leaves or on the stems of plants.

Mr. Leng in his revision, published thirty-three years ago, separated the species of *Donacia* into four groups. These groups with the exception of group A and excluding *harrisi* from group C are natural and it was my intention to accept them. However, the relative width of the mesosternal process between the middle coxae used in separating the groups B and C is variable and not uniform in all the species of both groups and differs also in the two sexes of some of the species. Though I have looked for other characters for separating the species into groups I did not succeed in finding them. The species of Mr. Leng's group D belong all in *Plateumaris*. The species of his group A are widely different from each other but also from our other species.

The late Edmund Reitter in 1920, following Prof. Jacobson, divided the European species of the subgenus *Donacia* into seven groups. Some of our species would fit in groups four and five but the rest scarcely in any of the others, besides the groups are by no means natural. Our North American Donacias are apparently much more variable and differ more in form, sculpture, etc., from each other than the European species.

In regard to variation the prothorax of all the different parts of the insect is the most variable in shape and sculpture, in some species exceedingly so, in others less. Of certain species two or three specimens could be selected, which, without the intermediate forms, would be

pronounced distinct species. In some specimens the prothorax appears to be elongate but is at least as wide at apical margin as long, in other specimens of the same species it is distinctly transverse, that is, wider than long. The apical angles vary also a great deal and are in certain species from feebly distinct to more or less projecting into an acute point. The longitudinal median impressed line is in some species always present and distinct, in other species absent or feeble in some specimens, but is occasionally present in species which generally have no impressed median line. The sculpture is in some species exceedingly variable from very finely and sparsely punctate to coarsely and densely punctate. The lateral tubercle, though variable to some extent, is more constant but is in specimens of some species absent, which generally have a feeble tubercle. The lateral margin below the tubercle is usually more or less undulate, sinuate or almost lobate in some species and is subject to variation in specimens of the same species. Occasionally one more or less distinct fovea-like impression on each side of the median line may be present in a specimen of almost any species. They are generally very regular and are misleading as they may be considered a constant character. Melsheimer called one of his species *biimpressa* on account of these two fovea-like impressions on the prothorax of his types and Dr. Leconte's *aurifer* var. of his revision was separated from the typical form by having two thoracic impressions. These impressions are possibly caused by "muscular exertion on the part of the insect while the body surface is yet soft" as suggested by Dr. Blaisdell in his revision of the Eleodini.

The elytra varies a good deal in form in specimens of the same species. The impressions or indentations on each side of suture are variable in distinctness and the post-median is often faint or entirely absent. The sculpture is also subject to variation in the same species.

The underside of the body and legs vary relatively little in sculpture and pubescence in nearly all our species with the exception of *biimpressa* Melsh. in which the pubescence and punctuation, especially of the first ventral segment, is very variable. The armature of the posterior femora is more or less constant in some species, in others it varies a good deal. In species with one small tooth in both sexes the tooth is occasionally absent or indicated by a more or less distinct angulation. The species with more than one femoral tooth have often the anterior one absent or reduced to a small, scarcely visible denticle, which can only be seen from an internal view. The posterior denticulate or serrate ridge of some species is also frequently broken up into one or more denticles or may be entirely obliterated. This ridge also is more plainly seen from an internal view.

The head is generally less variable. The sculpture varies a little. The impressed median line is generally distinct and varies slightly. The antennal joints, especially the second, third and fourth, are variable in length in specimens of the same species.

The sexual differences are very pronounced in some species, in others feebly so. The males generally are smaller and narrower than the females, the eyes more prominent, antennal joints more elongate, the intercoxal process of the mesosternum often narrower and the first abdominal segment usually shorter than in the female. The form and armature of the posterior femora is entirely different in the two sexes of some species, in others differs scarcely from those of the females but the form is generally a little more robust and longer in the males. The first ventral segment is occasionally broadly depressed at middle in the male, rarely in the species of the subgenus *Donacia*, but nearly always more or less distinctly in the species of the subgenus *Plateumaris*. The last ventral and dorsal segments are generally truncate at apex in the male and the last dorsal segment of some species emarginate in both sexes, in others only in the male. The last ventral and dorsal segments of the females are generally more or less distinctly triangularly converging to apex and either narrowly or broadly rounded at apex, occasionally they are quite elongate. In those species of which the males and females are nearly alike the sex of the specimen at hand is often difficult to determine, however, the males of all the species have at middle of the last ventral segment at apex a more or less deep depression.

Donacias in the adult stage generally feed on the pollen of flowers of aquatic, semiaquatic and palustral plants including reeds, sedges, etc., and each species is possibly partial to a certain plant in which they probably also breed. However, some species will feed on the pollen of flowers of a variety of plants but undoubtedly only in the absence of their natural or preferred food plant. Specimens of *subtilis* collected by Mr. W. E. Snyder at Beaver Dam, Wisconsin, were labelled "on Golden-rod blossoms." Mr. C. A. Frost found in Maine a number of specimens of *cmarginata* and a few of *metallica* on the flowers of the spiked maple, also specimens of *sulcicollis* in copula in the flowers of *Prunus*. Mr. Davis and myself took specimens of *liebecki* on the flowers of the white daisy, a Donacia which is generally found on the flowers and leaves of the white water lily. This latter case, however, is explained by the adjacent lake being dredged there were scarcely any water lilies left to feed upon. Mr. Wenzel found *liebecki* in numbers on the flowers of three different aquatic plants. The time of appearance and greatest

abundance of the different species differs very much. In the same locality and on the same plants may be found generally from three to five or even more different species but they are never found all at the same time. On one small pond in South Jersey, Mr. Wenzel took eleven different species in one season.

The earliest recorded date of occurrence of Donacias on plants is the middle of March in Alabama, where Mr. Loding takes *vicina* on *Sparganium*. Further north in New York and New Jersey *parvidens* and *caerulea* are the earliest species and appear before others in May, the latter species on the leaves of the yellow water lily and the former on the leaves of the white water lily.

Several species have been found very late in fall, early and late winter and very early in spring by sifting. These and possibly others undoubtedly hibernate.

Three species in the material loaned to me have caused a little trouble before I thought of comparing them with the European species. Two are in Mr. Leng's collection. One of these is an old worn specimen of *semicuprea* labelled "Ct.," the other a specimen of *impressa* labelled "Torrington, Ct., R. Hochstein." The third species was in the British Museum material sent me by Mr. Arrow and proved to be *discolor* labelled "Am. bor." As no other specimens of these species have been found in North America there is scarcely a doubt that they were wrongly labelled. *D. dentata* was once recorded as occurring in North America but has been dropped from our list by Mr. Leng in his revision. However, Prof. Jacobson in 1892 records it again as occurring in North America, but there are no American specimens of this European species in any of our collections and I am sure that it does not occur here.

In concluding the preliminary remarks there remains yet the pleasant duty of acknowledging the assistance received in the loan and gift of material and other favors.

Mr. Gilbert J. Arrow of the British Museum of Natural History in London, England, and later Mr. Bryant have kindly aided in comparing specimens with the types of Kirby, Newman and Lacordaire and Mr. Arrow also sent me their unnamed North American Donacias and Mexican specimens of *Haemonia nigricornis* and *Donacia cincticornis*.

Mr. Julius Weise of Warmbrunn, Germany, sent me a number of European species, which helped greatly in the correct determination of certain American species described by Lacordaire, which the latter, in his remarks, had compared with some European species.

Prof. A. Jacobson of Leningrad, Russia, forwarded a number of

Siberian species of which some, judging from the descriptions, seemed to me to be very close, if not identical, with some of our North American species.

Prof. S. C. Bruner of Habana, Cuba, kindly sent me specimens of *antillarum*, which enabled me to place it correctly.

Messrs. S. Henshaw and N. Banks of the Museum of Comparative Zoology permitted me to study the types of Leconte and Melsheimer and Dr. H. Skinner of the Philadelphia Academy the species in Dr. Horn's collection. Though Dr. Horn's collection contained no types it was, as Mr. Leng informed me, compared by Dr. Horn with the types and species of Dr. Leconte's collection and was the foundation of Mr. Leng's revision published thirty-three years ago and for this reason of interest.

Messrs. E. A. Schwarz and H. S. Barber of the National Museum, Washington; Dr. McDonough of the Entomological Branch, Ontario; Dr. E. P. Felt of the New York State Museum; Dr. H. H. Knight of the Minnesota University; Prof. C. R. Crosby of Cornell University; Prof. F. M. Saige of the University of Michigan; Prof. H. F. Wickham of the University of Iowa; Dr. W. E. Britton of the Connecticut Agricult. Exp. Station; Messrs. McAtee and L. L. Buchanan of the Biological Survey, Washington, and Dr. F. E. Chittenden of the Bureau of Entomology have kindly sent me the Donacias in the collection of the institutions with which they are connected. Dr. E. C. Van Dyke, Prof. W. S. Blatchley, Messrs. Charles Liebeck, H. W. Wenzel, F. R. Mason, H. P. Loding, H. H. Hatch, Chas. Dury, E. Liljeblad, A. B. Wolcott, J. B. Wallis, N. Criddle, Ralph Hopping, F. S. Carr, C. Chagnon, C. A. Frost, William S. Marshall, Charles W. Leng, H. Dietrich, William T. Davis, H. Notman, F. M. Schott, E. Shoemaker and E. H. P. Squire have given me very obligingly either the free use of their collections or have supplied desirable material.

Messrs. G. P. Engelhardt and J. R. de la Torre-Bueno, though not specializing in Coleoptera, have nevertheless collected several good species, some of which proved to be new records of distribution. Mr. Alan Nicolay, although interested only in Buprestidae, Rhynchophora and Carabini, has been constantly on the lookout for Donacias on his various collecting trips and has turned over to me all the material he collected. Some of my New York friends, Messrs. Notman, Shoemaker and Schott, and also Messrs. C. A. Frost of Framingham, Mass.; J. B. Wallis of Winnipeg, Manitoba; H. H. Hatch of the University of Michigan; H. P. Loding, Alabama, and Charles Liebeck and H. W. Wenzel of Philadelphia have kept a lively interest in Donacias during my investigations and have turned up a good deal of material.

To all my warmest thanks are due for the kind and ready responses to my request for the loan of material and also for other favors received. This large amount of material has made it possible to become thoroughly acquainted with this difficult group of insects and also added greatly to the knowledge of the distribution and food habits of our species.

The figures on plate V were made by Mr. Chris. E. Olsen.

The sequence of the species in the keys below is by no means natural; that is, species having a superficial resemblance are occasionally widely separated in the table. In the list of species, following the descriptions, the sequence of the species is more natural; however, some are rather aberrant and do not seem to fit anywhere, no matter where they are placed.

Tribe Donaciini.

The species of the tribe Donaciini are distinguished from other Chrysomelidae by having the front of head normal with a distinct, generally deep, longitudinal median impression and the mouth is advanced; the eyes are entire and the antennae are generally slender and inserted before the eyes. The prothorax is not margined laterally and always narrower than the elytra. The elytra are sub-triangular or subparallel and depressed or convex, apices rounded, truncate or emarginate. The anterior coxae are prominent and nearly touching each other and the cavities are closed behind and externally angulate. The middle coxae are rounded and separated; the posterior coxae are oval and widely separated. The front and hind tibiae have more or less distinct spurs. The claws are simple or feebly appendiculate. The first ventral segment is long, frequently as long or longer than the following segments together; the middle ventral segments are not narrower than the others.

The two genera of this tribe represented in our fauna are principally known by the great difference in the structure of the tarsi.

Key to Genera

Tarsi slender, not dilated, nearly glabrous below, third joint entire, very small, much shorter than second; claw joint very long, nearly as long as the preceding joints together; claws simple, narrow ..... *Haemonia* Latr.

Tarsi dilated, spongy beneath; third joint deeply bilobed, as long or longer than second and never much shorter than second; claw joint short, rarely as long as the two preceding joints; claws slightly appendiculate at base ..... *Donacia* Fab.

Genus Haemonia Latreille

Head behind the eyes shortly arcuately narrowing to the neck, and feebly constricted; ocular orbits distinct; median line deep, terminating anteriorly into a more or less distinct circular shallow impression, limited anteriorly by an arcuate though occasionally feeble, ridge-like elevation which is emarginate above, occasionally the shallow circular impression is prolonged posteriorly forming an elongate, shallow excavation obliterating the usual longitudinal median line; in front of the ridge the antennae are inserted which have the joints rather stout.

Prothorax laterally more or less deeply constricted at middle; anterior angles broadly arcuate; basal margin strongly oblique on each side, the outer angle produced laterally into an acute spine.

Elytra oval, feebly convex, covering the abdomen entirely, more or less distinctly emarginate at apex, outer angle prolonged into a moderately long spine, inner angle occasionally but slightly produced; lateral margin slightly explanate near apex; serial punctures in sub-geminate rows.

Body below very densely pubescent with very short, silken hairs; pubescent spot near each anterior coxae present and moderate; first abdominal segment as long as the following four; intercoxal process of mesosternum narrow; posterior femora narrow, very feebly clavate, reaching the apex of the last ventral segment in the male and to about the apex of the fourth in the female, unarmed below in both sexes; tarsi not dilated, slender, sparsely pubescent below, third joint very small, entire, much shorter than second, claw joints very long, as long or nearly as long as the preceding joints together, claws simple, narrow.

The male has the apex of the last ventral segment truncate and more or less distinctly depressed at middle; in the female the sides of the last ventral segment are obliquely and slightly arcuately converging to apex.

As I do not know any of the foreign species one or the other of the characters given above may be absent in some of them.

Only one variable and widely distributed species is known from the American continent.

Haemonia nigricornis Kirby.

Elongate oval, feebly convex; color above flavous, head black, along the middle occasionally pale; antennae black, prothorax generally with anterior margin and occasionally a spot on the disk on each side above middle black, serial punctures of elytra black; underside black,

frequently one or more of the ventral segments pale; legs concolorous, pale, tarsi and apex of tibiae frequently black.

Head densely pubescent but along the median line without or with little pubescence and more or less smooth and shining; antennae stout, not reaching to the middle of elytra.

Prothorax about as wide at apex as long; laterally more or less deeply emarginate; lateral tubercle small and generally indistinct; anterior angles broadly arcuate and more or less prominent anteriorly; median line distinct, generally wider and often fovea-like posteriorly; no sub-basal transverse impression; surface smooth and shining, sparsely and finely punctate near base and occasionally along anterior margin coarsely punctate; below anterior angles frequently rugose; occasionally on each side slightly above middle a small rugose space, which is generally black.

Elytra shining, oblong-oval; epipleurae from a postero-lateral view wider than the last interval; intervals between the rows of punctures flat, smooth and shining, towards apex convex.

Body below very densely pubescent with very short, yellowish silken hairs; the hairs of the pubescent spot near anterior coxae dense, surface externally shining and rather feebly strigate-rugose. Length: 6–7 mm.

The specimens before me are from Dist. of Columbia; Long Island, N. Y.; Minnesota; Iowa; Manitoba and Washington, but the species occurs undoubtedly in most of the intermediate localities. It is also found in Mexico and described originally as a distinct species, but later, on comparison with North American specimens, the author states that the Mexican specimens are conspecific with the former. In Genera Insectorum it is listed as a variety. I have seen three Mexican specimens kindly sent me by Mr. Arrow. Two are colored like our North American specimens and do not differ except that one is more densely punctate along base and lateral margins of prothorax and anteriorly finely and distinctly punctate. The third specimen is black above and below, except the legs and a large spot at anterior angle ferruginous; the prothorax in this specimen is also coarsely and densely punctate basally and laterally.

Genus Donacia Fab.

Head not or distinctly prolonged and narrowed behind the eyes, the prolonged part (tempora) truncate or rounded; ocular orbits distinct or entirely absent; median impressed line distinct and deep, not limited anteriorly by a ridge-like elevation; antennae variable.

Prothorax very variable in form; anterior angles distinct, rarely somewhat broadly rounded; basal margin straight or arcuate.

Elytra variable in form, generally not covering entirely the last abdominal segment, depressed or convex; apices truncate or emarginate, the angles are not or very rarely feebly prolonged; serial punctures in single rows; lateral margin not explanate near apex.

Body below very densely or sparsely pubescent; pubescent spot near anterior coxae present or absent; first abdominal segment variable in length, shorter or as long or longer than the following segments; posterior femora very variable but generally distinctly clavate and either short or very long; tarsi more or less dilated, spongy below; third joint deeply bilobed, as long or longer and never much smaller than second; claw-joint short, rarely as long as the two preceding joints, claws slightly appendiculate at base. The males have the last ventral segment truncate and more or less deeply impressed at middle of apex.

The genus *Donacia* is divisible into three subgenera which will be recognized by the following key:

Key to Subgenera.

1. Sutural margin of elytra sinuate near apex; ocular orbits absent; first ventral segment of abdomen generally about as long as the three following segments..... 2.

   Sutural margin of elytra straight to apex; ocular orbits distinct;[3] first ventral segment of abdomen about as long or slightly longer than the four following segments; elytral apices truncate, emarginate or rounded; third antennal joint subequal or shorter than the fourth; vaginal plates of females variable but apparently never serrate at apex and generally equal in length..... subg. *Donacia*.

2. Elytral apices truncate or more or less distinctly emarginate; head not constricted behind the eyes; tempora obsolete; posterior tibiae serrate or denticulate internally in both sexes; male posterior femora armed below with two teeth, the anterior one small, and a number of more or less distinct denticles along the lower edge, female posterior femora unarmed; third antennal joint longer than fourth in both sexes; vaginal plates of female equal in size, truncate or more or less distinctly emarginate at apex and not serrate. subg. *Poecilocera*.

   Elytral apices more or less rounded; head more or less deeply constricted behind the eyes; tempora distinct; posterior tibiae not serrate internally; posterior femora of male and female armed with one tooth only, which is sometimes

[3] In *rufa* Say (*tuberculata* Lac.) the ocular orbits are rather indistinct and scarcely visible in some specimens.

absent in one or both sexes of a few species; third antennal joint generally shorter than fourth;[4] vaginal plates of female unequal, the lower plate longer than the upper and generally triangularly converging towards apex into a more or less acute point with the outer edges uneven or serrate [5]. subg. *Plateumaris*.

Subgenus Donacia Fab.

Key to males.[6]

1. Posterior tibiae internally serrate and at apex produced into a moderately long, tooth-like projection; posterior femora extending below the apices of elytra, strongly bent a little below base and thence very strongly incrassate, armed below with two teeth and behind the posterior tooth a serrate ridge, which is often reduced to one or more denticles (plate V, fig. 4) ..... *militaris* Lac.
   Posterior tibiae at apex simple, not produced into a tooth-like process ..... 2.
2. First joint of anterior tarsi broadly dilated, subcordate; posterior femora with a large, somewhat compressed triangular tooth and a more or less distinct denticle in front of the latter ..... *palmata* Oliv.
   First joint of anterior tarsi normal, not subcordate ..... 3.
3. Middle tibiae at apex internally produced into a short, but distinct tooth; posterior femora with a large, somewhat compressed triangular tooth and a more or less distinct denticle in front of the latter (plate V, fig. 1.) ..... *piscatrix* Lac.
   Middle tibiae not produced at apex into a tooth ..... 4.
4. Hind femora long, extending to or beyond elytral apices .... 5.
   Hind femora decidedly shorter, extending never to the elytral apices ..... 11.
5. Posterior femora armed with two teeth and with a serrate ridge behind the posterior tooth which is often reduced to one or more denticles; the small anterior tooth occasionally very feeble or absent; prothorax shining, except in *caerulea* 8.
   Posterior femora armed with a single tooth; prothorax dull, alutaceous, in *rufescens* generally more or less shining ..... 6.
6. Posterior femora reaching to elytral apices, small species, color flavous with or without golden tint; antennae narrowly annulated with black; femora above with a more or less distinct dark space ..... *rufescens* Lac.

[4] The third antennal joint of the male of the European *consimilis* is longer than the fourth, at least in the single specimen which I have of this sex. In the female the third joint is equal to the fourth.

[5] The vaginal plates of the female of the European *consimilis* are apparently wide, of nearly equal length and width and arcuate-truncate at apex.

[6] The males have the last ventral segment truncate and a more or less deep depression at middle of apex. The females have the last ventral segment more or less triangular and generally narrowly rounded at apex, without median depression.

	Posterior femora generally extending beyond the elytral apices, larger species	7.
7.	Prothorax about twice as wide as long and very much like that of *palmata;* antennal joints largely black, base often reddish; legs more or less black or metallic, femora, tibiae and tarsi basally more or less reddish; posterior tarsi as usual and about half as long as the tibiae; anterior tarsi slender, first joint longer than fourth	*texana* Cr.
	Prothorax about as wide as long and generally slightly narrower at apex than at base; antennal joints generally entirely pale, legs pale, all the femora more or less black above; posterior tarsal joints rather long and together longer than half of the tibiae; anterior tarsi slightly dilated, first joint as long as the fourth joint	*hypoleuca* Lac.
8.	Prothorax moderately coarsely punctate, punctures often transversely confluent; anterior tooth of posterior femora very close to the posterior tooth	*magnifica* Lec.
	Prothorax rather finely punctate, never densely punctate, sometimes more or less finely transversely rugose; anterior tooth of posterior femora nearly as far removed from the posterior one as the latter from the apex of femora	9.
9.	Posterior femora extending well beyond the apices of elytra, posterior tooth rather long, acute, behind which is a serrate, oblique ridge, the latter often reduced to a few denticles in small specimens; outer apical angles of elytra distinct, though more or less narrowly rounded; anterior transverse impression of prothorax generally absent	*cincticornis* Newm.
	Posterior femora shorter, extending to the apices of elytra; armature of femora as in *cincticornis;* outer apical angles of elytra obliterated, broadly rounded; anterior transverse impression of prothorax generally distinct	10.
10.	Prothorax shining, finely and sparsely punctate	*proxima* Kirby.
	Prothorax alutaceous, dull, finely and sparsely punctate and occasionally with a few, fine scratches on the disk	*caerulea* Oliv.
11.	Posterior femora armed with one or more teeth	12.
	Posterior femora without tooth	27.
12.	Two teeth on posterior femora, the inner one occasionally very small, tubercle-like	13.
	One tooth on posterior femora	14.
13.	Upper surface entirely pubescent; epipleurae not separated from the elytra by a distinct ridge	*pubescens* Lec.
	Upper surface not pubescent; epipleurae separated from the elytra by a distinct ridge	*rufa* Say.
14.	Prothorax finely and densely punctate and pubescent; elytra without fine, elevated sutural bead	*hirticollis* Kirby.
	Prothorax not pubescent, punctuation variable; elytra with distinct, elevated sutural bead	15.
15.	Prothorax shining, smooth, with very few fine punctures	*parvidens* Schffr.
	Prothorax distinctly punctate, punctures variable	16.

16. Elytral epipleurae, from a postero-lateral view, transversely arcuate, wider than the last elytral interval and not limited above by a more or less distinct ridge..... *quadricollis* Say.
Elytral epipleurae narrower than the last elytral interval and limited above by a more or less distinct ridge..... 17.
17. Posterior femora bicolored or entirely rufous..... 21.
Posterior femora uniformly metallic..... 18.
18. Posterior femora short, extending to or slightly beyond the apex of the second ventral segment; body below sparsely pubescent with very short hairs, which are generally feebly visible on the first ventral segment and not obscuring the metallic surface color; eyes small; elytra without coarse rugae, intervals finely rugose from base to apex..... *biimpressa* Melsh.
Posterior femora extending to or slightly beyond the apex of the third ventral segment; body below moderately densely pubescent, pubescence nearly obscuring the metallic surface color; eyes moderately large; elytral sculpture variable... 19.
19. Head more deeply narrowed behind and eyes slightly smaller than in *subtilis;* prothorax and elytra wider and more nearly of the form of *proxima;* prothorax always with impressed median line and moderately distinct lateral tubercles; elytra without coarse, transverse rugae, intervals relatively finely rugose from base to apex; last dorsal segment of abdomen of both sexes generally emarginate at middle of apex..... *distincta* Lec.
Head slightly narrowed behind; eyes moderately large and prominent; prothorax with or without impressed median line and lateral tubercles; elytra with more or less distinct coarse, transverse rugae; intervals often densely rugose from base to apex or smooth and feebly rugose in about basal half but more densely rugose towards apex; last dorsal segment of abdomen not or rarely feebly emarginate. 20.
20. Form elongate; elytra subtriangular and, viewed laterally, flattened towards apex; sides of prothorax distinctly converging behind, lateral tubercles indistinct; median line rarely present; antennae more slender..... *subtilis* Kunze.
Form more convex and subparallel; elytra, viewed laterally, arcuately declivous towards apex; prothorax scarcely converging behind, lateral tubercles more or less distinct and median line always present; antennae generally stouter... *tuberculifrons* Schffr.
21. Prothorax anteriorly subtriangularly impressed, impression limited behind by a more or less distinct oblique, obtuse ridge; lateral tubercles distinctly limited internally by a rather wide but shallow impression; surface finely punctate or moderately finely rugose..... 22.
Prothorax anteriorly not impressed; lateral tubercles rather feebly limited..... 23.
22. Third joint of antennae longer than second and as long as the

first joint; elytra rather coarsely and densely rugose, without any indentations; hind femora gradually clavate ..... *dissimilis* n. sp.

Third joint of antennae as long as second and shorter than the first joint; elytra generally smooth on the disk or faintly rugose, at sides more distinctly rugose; elytral indentations usually very distinct; hind femora more suddenly clavate ..... *aequalis* Say.

23. Elytra finely rugose ..... 24.
Elytra coarsely rugose ..... 25.

24. Ventral segments densely pubescent, especially the first, almost obscuring the metallic surface color ..... *porosicollis* Lac.
Ventral segments sparsely pubescent with rather short hairs, metallic surface color always plainly visible ..... *biimpressa* Melsh.

25. Second and third antennal joints short, equal in length, third shorter than first joint; head strongly narrowed behind the eyes which are very prominent ..... 26.
Third antennal joint at least one half longer than second and as long as the first joint; head feebly narrowed behind the eyes which are moderately prominent ..... *rugosa* Lec.

26 Antennae black or bicolored; posterior femora generally bicolored and armed with a small, acute tooth ..... *liebecki* Schffr.
Antennae unicolorous, reddish; posterior femora generally uniformly reddish and armed with a large triangular tooth, which is more or less crenulate on its posterior margin .... *megacornis* Blatch.

27. Prothorax finely alutaceous, dull, with a very few, fine punctures on the disk, laterally very finely rugose ..... *edentata* Schffr.
Prothorax shining and distinctly punctate ..... 28.

28. Prothorax densely punctate with moderate punctures and pubescent with rather short hairs; elytra a little more than twice as long as wide at base, apices rounded ..... *pubicollis* Suffr.
Prothorax not pubescent; elytra less than twice as long as wide at base, apices more or less truncate ..... 29.

29. Third antennal joint as long as the first joint; posterior femora strongly clavate, at base distinctly narrower than at apex ..... 30.
Third antennal joint shorter than the first; posterior femora feebly clavate, as wide at base as at apex ..... *vicina* Lac.

30. Elytra smooth, not rugose on the disk, feebly rugose at sides and apex; prothorax with a rather wide but shallow longitudinal, median impression ..... *assimilis* Lac.
Elytra generally coarsely rugose; prothorax without or rarely with narrow median impression ..... *rugosa* Lec.

Key to females.

1. Posterior femora armed below with one or more teeth or tubercles ..... 11.
Posterior femora unarmed below ..... 2.

2. Third joint of antennae as long or longer than first ..... 5.
Third joint shorter than first ..... 3.

3.	Prothorax pubescent	4.
	Prothorax not pubescent, shining and moderately coarsely punctate	*vicina* Lac.
4.	Head, prothorax and elytra pubescent	*pubescens* Lce.
	Head and prothorax pubescent, elytra smooth	*hirticollis* Kby.
5.	Prothorax not pubescent; elytra less than twice as long as wide at base	6.
	Prothorax pubescent; elytra more than twice as long as wide at base, apices rounded	*pubicollis* Suffr.
6.	Prosternal side pieces entirely pubescent	*militaris* Lac.
	Prosternal side pieces pubescent near anterior coxae for about half or less of their width	7.
7.	Prothorax moderately coarsely punctate, shining, posterior femora relatively strongly clavate, at base much narrower than at apex	8.
	Prothorax finely punctate or finely rugose, more or less dull	9.
8.	Elytra on the disk smooth, shining	*assimilis* Lac.
	Elytra moderately coarsely rugose from base to apex	*rugosa* Lec.
9.	Lateral tubercle of prothorax distinct and separated from disk by an arcuate impression	10.
	Lateral tubercle absent; elytra shining, intervals not rugose; posterior femora scarcely clavate, rather narrow and elongate	*edentata* Schffr.
10.	Prothorax densely and finely rugose; elytra coarsely and rather densely rugose; posterior femora robust but feebly clavate and at base and apex of equal width; prothorax at sides below vermiculate-rugose	*dissimilis* n. sp.
	Prothorax finely alutaceous with a few small punctures on the disk; elytra generally feebly rugose on the disk but more strongly at sides and apex; posterior femora strongly clavate, at base narrower than at apex; prothorax at sides below finely strigate-rugose	*rufa* Say.
11.	Posterior femora armed below with one tooth and behind this an oblique serrate ridge,[7] which latter is often reduced to one or more denticles	12.
	Posterior femora below with one tooth but without an oblique ridge or denticles behind	13.
12.	Outer apical angle of elytra not distinct, broadly rounded; anterior transverse impression of prothorax generally distinct	*proxima* Kby.
	Outer apical angle of elytra distinct, but feebly rounded; anterior transverse impression of prothorax generally absent	*cincticornis* Newm.
13.	Posterior femora bicolored or entirely rufous	14.
	Posterior femora uniformly metallic	27.
14.	Posterior femora long, reaching the apex of the third ventral segment or longer	15.

[7] Seen more plainly from an internal view.

Posterior femora shorter, reaching the apex of the second ventral segment; prothorax alutaceous but more or less shining, frequently dull, generally sparsely and finely punctate, with a few larger punctures intermixed, median line entire from apex to base and deeply impressed ..... *parvidens* Schffr.

15. Prothorax distinctly alutaceous, dull, with a few fine punctures on the disk ..... 16.

Prothorax not alutaceous, more or less shining and generally with coarse or moderately coarse punctures, except in *aequalis*, which has the punctures relatively fine, often dense and confluent ..... 21.

16. Middle tibiae dilated internally at apex and produced into a short tooth (plate V, figs. 1 and 2) ..... 17.

Middle tibiae normal, without tooth-like process ..... 18.

17. Last ventral segment produced at middle of apex into a short, lamina-like process, which is generally truncate and often feebly emarginate at tip; form broader and antennal joints generally stouter (plate V, fig. 10) ..... *piscatrix* Lac.

Last ventral segment regularly arcuately converging to apex; form slender and antennal joints narrower and more elongate (plate V, fig. 9) ..... *palmata* Oliv.

18. Elytra dull, alutaceous and generally blue; small species, about 8 mm. long ..... *rufescens* Lac.

Elytra shining, color variable; larger species, 9–11 mm. long ..... 19.

19. Prothorax as wide at apex as long, generally narrower at apex than towards base; neck moderately wide and distinctly but not deeply constricted behind the eyes; eyes large and prominent ..... *hypoleuca* Lac.

Prothorax short, wider at apex than long and not narrower anteriorly ..... 20.

20. Posterior femora reaching the apex of the fourth ventral segment; first joint of all the tarsi elongate and generally longer than the third joint; neck robust ..... *texana* Cr.

Posterior femora reaching the apex of the third ventral segment; first joint of all the tarsi rather short, as long as the third joint; neck moderately robust ..... *caerulea* Oliv.

21. Elevated lateral margin of elytra, separating the latter from the epipleurae, absent; epipleurae broadly, transversely rounded and wider than the last elytral interval; prothorax and elytra rather densely and moderately coarsely rugose ..... *quadricollis* Say.

Elevated lateral margin distinct; epipleurae narrower than the last elytral interval ..... 22.

22. Prothorax with distinct transverse sub-apical impression, which is limited behind on each side of median line by an oblique, obtuse ridge; lateral tubercles distinctly separated from the disk by a rather wide and deep impression; elytral

indentations strongly impressed; form rather short and robust ..... *aequalis* Say.

Prothorax without transverse sub-apical impression; tubercles indistinct and more feebly separated from the disk; elytral indentations generally feeble, the posterior ones occasionally absent; form variable ..... 23.

23. Elytra without coarser transverse rugae; intervals finely, transversely strigate-rugose; hind femora generally feebly clavate, at base as wide or slightly narrower than at apex; form relatively narrow and elongate ..... 24.

Elytra with more or less distinct transverse coarser rugae, which are absent in *rugosa;* intervals relatively coarsely rugose; hind femora strongly or moderately strongly clavate and distinctly narrower at base than at apex, but feebly so in *liebecki;* form stouter ..... 25.

24. Body below densely pubescent, hiding almost entirely the metallic surface color; prothorax often with dual punctuation, small punctures intermixed with the generally dense, coarse punctures; anterior angles in the larger specimens frequently laterally produced ..... *porosicollis* Lac.

Body below sparsely pubescent, pubescence very short and frequently scarcely visible at middle of first ventral segment; punctuation of prothorax variable; anterior angles never produced ..... *biimpressa* Melsh.

25. Antennae slender; third joint distinctly longer than second and as long as the first joint; outer joints elongate; head relatively feebly constricted behind the eyes, which are moderately prominent; intercoxal process of mesosternum about one half the width of the cavities ..... *rugosa* Lec.

Antennae short, rather stout; second and third joints equal or sub-equal, third shorter than first joint; outer joints short; head rather strongly narrowed behind the eyes, which appear thus very prominent; intercoxal process of mesosternum about one fourth the width of the cavities ..... 26.

26. Antennae unicolorous, reddish; posterior femora armed below with a large, triangular tooth which is crenate posteriorly; form short and robust ..... *megacornis* Blatch.

Antennae bicolored; posterior femora below with a small tooth which is not crenate posteriorly; form short, but elytra more parallel and depressed ..... *liebecki* Schffr.

27. Serial punctures of elytra rather large; intervals narrow, never wider than the punctures; color bright metallic blue or purple with lateral margins of prothorax metallic green or golden ..... *magnifica* Lec.

Serial punctures of elytra moderate; intervals wider than the punctures; color variable but never bright metallic blue ..... 28.

28. Form rather broad, more like *proxima;* head distinctly

narrowed behind the eyes, which are slightly smaller than in *subtilis* but appear to be more protruding; elytra without transverse, coarse rugae, intervals generally evenly and finely rugose from base to apex, laterally mostly with a rather broad, longitudinal, shallow impression; last dorsal segment of abdomen emarginate at apex ..... *distincta* Lec.

Form narrower and more elongate; head relatively feebly narrowed behind the eyes which are moderately large and moderately prominent; elytra generally with more or less distinct transverse, coarse rugae, intervals moderately finely to moderately coarsely rugose from base to apex, at apex generally finer and denser, disk occasionally in about basal half or less smooth and shining, at sides and near apex more or less densely rugose ..... 29.

29. Elytra more elongate, subtriangular, depressed and when viewed laterally flattened above near apex; antennal joints more elongate; prothorax distinctly narrowing from apex to base; median impressed line rarely present; lateral tubercles feeble and scarcely distinct or absent ..... *subtilis* Kunze.

Elytra shorter, more convex and parallel, when viewed laterally more or less distinctly arcuately declivous near apex; prothorax scarcely narrowing behind; median impressed line always distinct; lateral tubercles distinct, though not prominent ..... *tuberculifrons* Schffr.

Descriptions of Species.[8]

Donacia militaris Lac.

Plate V, fig. 4.

Oblong, depressed; color above from entirely flavous to blue or green; antennae pale or almost entirely black; underside pale, laterally generally darker; legs pale, all the femora or only the posterior ones more or less infuscate.

Head not constricted behind the eyes; moderately closely punctate; median impression deep; eyes moderately large; antennal joints elongate; third joint about one third longer than second.

Prothorax subquadrate, sides more or less parallel, frequently narrowing from base to apex; apical angles blunt; basal angles generally prominent; surface finely alutaceous, feebly shining, without or with a few fine punctures on disk; lateral tubercles absent; a short, but deeply impressed line at middle of base, which rarely extends as far as middle; occasionally there is also on each side of this short median line near base a short, oblique or slightly arcuate transverse impression.

[8] The measurements are taken from the apical margin of the prothorax to the apex of elytra. Only localities are recorded from which specimens have been seen.

Elytra alutaceous, generally dull; strial punctures fine; intervals scarcely rugose; apex truncate or more or less distinctly emarginate.

Body below densely clothed with very short, white pubescence; the side pieces of prosternum entirely pubescent, but not densely. Length: 5–6.5 mm.

Male: Posterior femora extending far beyond the elytral apices, very strongly incrassate from a little below base and armed with two acute teeth, behind the posterior one a more or less distinct oblique ridge, which is often broken up into one, two or three small teeth or tubercles or occasionally, though rarely, absent; posterior tibiae serrulate within and prolonged internally at apex into a moderately long process. Last dorsal segment arcuately narrowing towards apex into a more or less distinct obtuse point; last ventral segment with a deep, rather broad median impression at apex; intercoxal process of mesosternum not quite as wide as the middle coxae.

Female: Posterior femora extending to or slightly beyond the elytral apices, very feebly incrassate toward apex, unarmed below; posterior tibiae normal and not serrulate internally; last dorsal segment elongate, gradually narrowing towards apex, which is arcuate; last ventral segment shorter than the last dorsal and rather broadly arcuate at apex; intercoxal process of mesosternum about as wide as the middle coxae.

Massachusetts: Cambridge, January (G. R. Crotch); "neighborhood of Boston" (Lacordaire).
New York: Carmel, August (Squire).
New Jersey: Palatine, July (Liebeck); Quick Pond, Sussex Co., June (Davis); Brookville, July (Leng); Lakehurst, September (Woodruff); Hammonton, July (Wenzel); Clayton, September (Wenzel).
South Carolina: Swansea, August (Knab).
Georgia: Bainbridge, June (Bradley).
Florida: Enterprise (Schwarz).

This species is taken on the flowers and leaves of the white water lily.

D. militaris is wrongly placed as synonym of *palmata*, it is the same as *D. floridae* Leng. Reading Lacordaire's description of *militaris* my attention was called to the possible misidentification of this species by his comparison of the form of the posterior femora with that of the European *bidens* Oliv. = *versicolorea* Brahm. *D. floridae* is the only North American species with hind femora of the males much like those of the European *versicolorea* and as the rest of the description agreed also very well I had scarcely any doubt that *militaris* and *floridae* were

the same. However, to be absolutely certain, I sent a specimen to the British Museum to be compared with the type. Mr. Arrow returned the specimen with the remark that they are identical. The prolongation of the hind tibiae into a spine-like process of the males is of rare occurrence in the genus. It is not mentioned in the descriptions of *militaris* nor *floridae* but on inquiry Mr. Arrow wrote me that it is also present in the type specimen.

The males of the European *crassipes* have the hind tibiae also prolonged internally at apex but into a shorter process which is truncate at apex.

The shape of the prothorax is as in many other species variable. Lacordaire described the prothorax a little wider than long and not converging behind and Mr. Leng's description says that the thorax is narrower at apex than base. Both forms and intermediates are found in any locality. The oblique ridge behind the posterior tooth of the hind femora is also variable and often broken up into one or more denticles and even these are obliterated occasionally.

The emargination of the elytral apices occurs more frequently in the males than in the females.

The small size, the long and strongly incrassate hind femora and the spine-like apical process of the posterior tibiae will easily recognize the males. The females look superficially like females of *rufescens* and both have been taken together on the same plant, but the latter have shorter and stouter hind femora which are armed below with a distinct tooth.

Donacia piscatrix Lacordaire.

Plate V, figs. 1 and 10.

Moderately elongate and depressed; upper surface entirely pale with or without metallic tint, golden, metallic green or blue; antennae pale or bicolored; legs occasionally entirely pale or femora in apical half or less metallic; body beneath metallic green, the last three or four ventral segments more or less pale.

Head feebly constricted behind the eyes; rather finely, densely punctate; median line deeply impressed; eyes rather large; antennae somewhat stout, third joint longer than second, generally longer than first. Prothorax transverse, generally wider at apex than at base; sides more or less strongly sinuate; anterior angles more or less distinct, occasionally rounded; posterior angles distinct and rather prominent; lateral tubercle generally feeble; anterior transverse impression distinct;

median line faint or absent; ante-basal impression shallow; surface dull, alutaceous with a few punctures of moderate or small size.

Elytra rather elongate-oval; strial punctures coarse; intervals generally finely rugose or occasionally almost smooth except towards apex where they are more or less convex; apices truncate, outer apical angle usually broadly rounded.

Body beneath very densely and finely punctate and very densely pubescent with rather short, white or yellow silken hairs; side pieces of prosternum with a large pubescent space near anterior coxae; mesosternal process between the middle coxae wide but not as wide as the middle coxal cavities; intermediate femora rather robust, scarcely clavate and nearly elliptical; middle tibiae in both sexes produced internally at apex into a short tooth-like process, adjacent to the usual apical spur (pl. V, fig. 1). Length: 6–9 mm.

Male: First ventral segment more or less distinctly depressed along middle; last ventral segment truncate and deeply depressed at middle of apex; last dorsal segment truncate at apex; posterior femora extending to elytral apices, strongly incrassate in apical half, armed below with two teeth, the posterior one with a ridge behind, the anterior one small, tubercle-like, often very indistinct.

Female: Stouter than the male and antennae slightly shorter; last ventral segment produced at middle of apex into a more or less distinct laminate process which is often truncate or slightly emarginate at apex (pl. V, fig. 10); last dorsal segment rather elongate, sides converging into an obtuse point; posterior femora extending to the apex of the third or fourth ventral segment less strongly incrassate than in the male, armed below with one tooth behind which is a more or less distinct ridge.

British Columbia: "Brit. Col." (Ent. Branch).
Ontario: Sudbury (Ent. Branch); Ottawa (Simpson); Lac des milles lacs, Thunder Bay (McInnes); Prince Edwards Co. (Evans).
Quebec: Val Morin (Knab coll.); Oxford Lke., July (Winn ex Chagnon).
Wyoming: "Wy." (Minn. Univ.).
Minnesota: Fergus Falls, August (Biol. Surv.).
Indiana: Kosciusko and Vigo Co's., June (Blatchley).
Michigan: Berrien Co., June (Hatch); Oakland Co., June, July (Frankenfield); Detroit and Marquette, July (Hubb. & Schwarz).
Wisconsin: Elkhorn, July (Knab coll.).
Massachusetts: Concord River, July (Blanchard); Monterey, July (Frost).
Maine: Paris, July (Frost).

Connecticut: Goshen, July (Chamberlain), June (Frost).
New York: Saranac Inn, Lake Bluff and Big Moose (N. Y. S. coll.); Lake George, July (Fisher Biol. Surv.); White Plains (Bueno); Horicon, Brant Lake, August (Doll); Pine Island, June (Davis); Staten Island (Leng, Davis); "Long Island" (Engelhardt); Lake Ronkonkoma, Long Island, May (Schott).
New Jersey: Lakehurst, July (Engelhardt); Neshanic, June (Schott); Masonville, June, July (Wenzel).
Pennsylvania: Spring Mount, May–September (Wenzel); Pike Co., July (Wenzel); Bristol, September (Wenzel).
Virginia: Dyke, May (Jackson, Biol. Surv.); Hunting Co., September (McAtee, Biol. Surv.).
Dist. Columbia: Eastern Branch, June (Shoemaker); Washington, June (Davis).
North Carolina: Southern Pines, June (Mance).
South Carolina: Swansea, August (Knab).
Tennessee: Reelfort Lake, Samburg, July (McAtee).
Georgia: Billy's Island, June (Bradley).
Florida: Enterprise (Dietz, Beyer); Dunedin (Blatchley); Crescent City (Hubbard and Schwarz).
Texas: New Braunfels (coll. O. Dietz); Del Rio (Wickham); Cristoval, April (Fisher, Biol. Surv.).

All records indicate that this species is found on the flowers and leaves of the yellow water lily. Mr. Wenzel has kept this species under close observation almost daily from the beginning of May into September and has send me the following note:

"Copulation takes place after the heat of the day. If *Nymphaea* is in bloom almost every flower will contain males and females. There must be a continual supply of adults; many dead specimens were observed throughout the summer and if death is natural the dead ones will be found adhering to the leaf near the stem.

"The eggs are laid in the flowers, where they may be found in numbers."

The shape of prothorax is very variable, the sides are often deeply sinuate or rather constricted at middle which is in some specimens rather faint and generally the sides are feebly converging behind. Florida specimens have the prothorax very wide in front and rather strongly converging to base, the sides feebly or not sinuate. These, however, occur with typical and intermediate specimens. The short, tooth-like apical prolongation of the middle tibiae and the normal first joint of

anterior tarsi separates the males from any of our other species. The females are closely allied to *palmata*, but the shape of prothorax is different in the two and the general form of *palmata* is more elongate, the antennal joints narrower and longer, the legs less stout, the intermediate femora narrower and distinctly clavate and the last ventral segment at apex is never prolonged at middle into a more or less distinct laminate process.

The broad median impression of the first ventral segment of the males is in some specimens very deep and in others very faint and scarcely visible.

The following variety of *piscatrix* is recognized.

var. CONGENER Lec.

Form and size of *piscatrix*; prothorax more like that of *palmata* but a little wider; antennal joints narrower and more elongate; upper surface of prothorax and elytra with a distinct golden tint, at least in the eight specimens seen, including the two type specimens, elytra smoother.

Georgia: "Ga." (Leconte coll.).
Texas: Del Rio, May (Mitchell, Nat. Mus.); Devil's River, July (H. A. Wenzel).

This form is quite distinct and entitled to be recognized as a variety and not as a synonym of *piscatrix*. It looks like certain *palmata*, but it has nearly all the characters of *piscatrix* including the form of front tarsi of the males and the peculiar form of the last abdominal segment of the female of that species.

DONACIA PALMATA Oliv.

Plate V, figs. 2 and 9.

Elongate, color variable from flavous with or without golden tint to metallic green or blue; antennae either entirely dark or pale with the apices of the joints more or less black; legs pale, club of femora above and often the upper edge of tibiae more or less distinctly dark-metallic; underside of body occasionally pale or entirely dark with a feeble metallic tint and the last few ventral segments more or less pale.

Head slightly constricted behind the eyes, closely punctate, punctures moderate; median impressed line generally deep and rather broad; tubercles feeble; eyes relatively large; antennal joints rather narrow and elongate, third much longer than second and generally equal or subequal to the fourth.

Prothorax generally not quite one half wider at apex than long; sides more or less converging towards base and scarcely sinuate; anterior angles more or less distinct but not prominent; basal angles prominent; lateral tubercle generally distinct by a more or less evident internal impression; apical impressed transverse line generally distinct; median line fine, often feeble; surface distinctly, finely alutaceous, base rugose especially at middle and along median line, disk with a few fine punctures.

Elytra nearly twice as long as wide at base; apices truncate, exterior angles feebly rounded; surface not alutaceous and more or less shining; strial punctures moderate and scarcely smaller towards apex; intervals more or less finely punctate and generally not rugose.

Body beneath with fine, very dense, silvery-white pubescence; prosternal side pieces near the coxae with a rather wide, pubescent space; mesosternal intercoxal process wide; intermediate femora distinctly clavate; middle tibiae produced internally into a short, tooth-like process. Length: 7–9 mm.

Male: Anterior tarsi dilated, first joint subcordate; last dorsal segment truncate or feebly rounded; mesosternal intercoxal process wide but not as wide as the coxal cavities; last ventral segment truncate at apex and slightly depressed at middle of apex; first ventral segment not excavate. Posterior femora reaching the apex of elytra and armed below with a broad posterior tooth and a much smaller one slightly in advance of the latter.

Female: Differs as usually from the male by being a little more robust, antennal joints shorter, last dorsal segment more elongate and converging towards apex; last ventral subtriangular, converging towards apex into a more or less distinct subacute point (pl. V, fig. 9); intercoxal process of mesosternum nearly as in the male; anterior tarsi normal, posterior femora nearly reaching the elytral apices and armed below with a single tooth.

Ontario: Ottawa (Simpson).
Quebec: Mt. St. Hilaire, June (Knab coll.); Bondville, July (Winn ex Chagnon); Lake St. Joseph (Davis coll.).
Michigan: Oakland Co., June, July (Frankenfield).
New Hampshire: Claremont, July (Engelhardt).
Massachusetts: Attleboro, July (Frost); Chicopee, July (Knab).
Maine: Monmouth, June (Frost).
Connecticut: Goshen, July (Chamberlain).
New York: Rockland Lake, July (Schott); Athens, July (Schott); Horicon (Doll); Keene Valley, July (Notman); White Plains,

May (Torre-Bueno); Saranac Lake, September (N. Y. S. coll.); Ithaca, July (N. Y. State coll.).

New Jersey: Little Falls, June (Nicolay); Neshanic, June (Schott).

Pennsylvania: Spring Mount, June (Wenzel).

Dist. Columbia: Bennings, June (Wetmore, Biol. Surv.).

Maryland: "Md." (Lugger, Minn. Univ. coll.).

Georgia: Spring Creek, Decatur Co., June (Bradley).

Occurs on the flowers and leaves of the yellow water lily.

The males of *palmata* can not be mistaken for any other species on account of the strongly and curiously dilated first joint of front tarsi. The females, however, are close to *piscatrix* and to *texana*. The latter, however, is of a little stouter form and has the middle tibiae not dilated internally at apex into a short tooth-like process. The females of *piscatrix* are less elongate and have generally, in the typical form at least, shorter and stouter antennal joints and legs, the intermediate femora more robust and scarcely clavate and the last ventral segment is more or less distinctly produced at apex into a short, laminate process.

Donacia texana Crotch.

Similar in form to *palmata* but slightly shorter and a little more robust; color variable, head and prothorax metallic green to cupreous, elytra blue, purple or entirely green; antennae mostly dark with green metallic tint, occasionally a few joints narrowly reddish at base; legs pale, femora in apical half or more entirely metallic green, tibiae and tarsi also more or less metallic green towards apex; body beneath pale, at sides generally darker.

Head feebly constricted behind the eyes which are rather large and moderately prominent; surface densely and finely punctate; median line generally deeply impressed; antennae extending to or beyond the middle of elytra, joints rather narrow and elongate, third joint longer than the first.

Prothorax generally not quite one half wider at apex than long; anterior angles distinct, generally not prominent; posterior angles prominent; lateral tubercle more or less distinct; anterior transverse impression generally distinct; posterior sub-basal impression rather broad and shallow; median impressed line fine and more or less distinct; sides scarcely converging behind and at most feebly sinuate; surface dull or feebly shining, alutaceous with a few, fine punctures on the disk.

Elytra twice as long as wide at base; strial punctures rather small and slightly finer towards apex; intervals distinctly wider than the

strial punctures, shining and feebly rugose on the disk, at sides and apex distinctly and somewhat strigate-rugose; apex truncate, outer angle more or less distinct but obtuse and feebly rounded.

Body beneath very finely and densely punctate and very densely pubescent with fine, short, silken hairs; side pieces of prosternum with a rather large, densely pubescent space near anterior coxae; mesosternal process between the middle coxae as wide or nearly as wide as the coxal cavities; middle tibiae normal. Length: 8–9.5 mm.

Male: Last ventral segment sub-truncate at apex with a distinct apical depression at middle; last dorsal sub-truncate at apex; posterior femora extending beyond the apices of elytra, moderately strongly clavate in about apical half, anterior half very narrow; armed below with a rather small, acute tooth; tarsi normal, slender.

Female: Last ventral segment arcuately narrowing into an obtuse point; last dorsal elongate, sub-triangular; posterior femora as in the male, but shorter and extending to the apex of the fourth segment.

Texas: "Texas" (Mus. Comp. Zool.); New Braunfels (coll. O. Dietz); Cristobal, April (Fisher, Biol. Surv.).
Louisiana: Covington, May (Soltau).
Florida: Crescent City (Hub. & Schwarz).

Donacia texana is a distinct species and not a synonym of *hypoleuca*. The head and prothorax in *texana* are very much like those of *palmata* and differ in this respect from *hypoleuca* of which the male has the anterior and middle tarsi shorter and stouter than those of *texana*.

A slightly smaller form occurs rather abundantly further north which deserves a separate name.

var. MINOR new variety.

Differs from typical *texana* in smaller size and relatively larger strial punctures of elytra. Length: 6–7.25 mm.

Type, male, and allotype, female, in the Museum collection.

Michigan: Washtenaw Co., August (Hatch).
New York: Rockland Lake, July (Schott); Staten Island (Leng); White Plains, August (Torre-Bueno).
New Jersey: Centerton, July (Liebeck); Palatine, July (Liebeck); Neshanic, June (Schott); Masonville, June (Wenzel).
Pennsylvania: Bristol, September (Wenzel); Spring Mt., May (Wenzel).
Delaware: Townsend, August (ex Liebeck).
Virginia: Black Pond, Fairfax Co., September (Shoemaker).
Texas: "Tex." (Leng coll.).

The food plant of this variety is *Nymphaea advena* on which many specimens were found in copulation, Sept. 2, by Mr. Wenzel.

This variety and *caerulea* are very much alike and certain specimens of the latter with much reduced femoral armature may cause a little trouble as to its correct place. The former has a narrower prothorax and the antennal joints, posterior femora and hind tarsi are longer than in *caerulea*.

DONACIA HYPOLEUCA Lac.

Elongate, depressed; color of upper surface yellowish-testaceous to brown with a more or less metallic tint, head and prothorax generally more distinctly metallic; antennae pale, joints at apex more or less infuscate; legs pale, upper part of femora black; body below entirely pale reddish-yellow or mesosternum, metasternum and first ventral segment black at sides.

Head densely and finely punctate, feebly constricted behind the eyes which are large and prominent; median line deeply impressed; antennae elongate, third joint longer than the first and nearly as long as the fourth joint.

Prothorax as long as wide at apex; generally narrower at apex than at base; anterior angles distinct though rarely slightly prominent; posterior angles prominent; lateral tubercle indistinct or entirely absent; anterior transverse impression absent; median line fine, occasionally faint; ante-basal impression broad but shallow; surface rather dull or feebly shining, very finely alutaceous and with scarcely any punctures except occasionally along the median line.

Elytra about twice as long as wide at base; strial punctures moderately large and little smaller towards apex than near base; intervals flat, but convex near apex, smooth and shining; apex truncate, outer angle distinct, obtuse.

Body beneath very finely and densely pubescent with very short, white silken hairs; side pieces of prosternum with a rather large pubescent space near the anterior coxae; mesosternal process between the middle coxae as wide or nearly as wide as the coxal cavities; middle tibiae normal. Length: 8–9 mm.

Male: Last ventral segment truncate and distinctly depressed at middle of apex; last dorsal truncate at apex; posterior femora extending slightly beyond the apices of elytra, distinctly clavate in about apical half and armed below with a rather short, acute tooth; anterior tarsi dilated, stout, first joint slightly shorter than the next two; middle tarsi slightly dilated; posterior tarsi normal.

Female: Last ventral segment sub-truncate and occasionally feebly emarginate at apex; last dorsal segment elongate, gradually converging

towards apex, which is more or less rounded; posterior femora as in the male but slightly shorter, extending to the apices of elytra or very nearly so.

Michigan: Ann Arbor, August (Univ. Mich.).
Illinois: Henry, August (Knab coll.).
Nebraska: Cedar Bluffs (Bruner, Nat. Mus.).
Kansas: Ottawa, August (Brown ex Frost).
Texas: Columbus (Schwarz).
Missouri: "Missouri" (Lacordaire); Perouque, July (McAtee); St. Louis Co., July (Bock ex Liebeck).
Ohio: Mt. Vernon, July (Akerlind in coll. Liljeblad).
Tennessee: Reelfort Lake, Samburg and Walnutlog, July (McAtee).
Louisiana: "Louisiana" (Lacordaire); New Orleans (Liebeck and Knab coll.).
District of Columbia: Washington (Blanchard coll.).
New Jersey: Five Mile Beach, July (Wenzel).

In the majority of specimens the prothorax is gradually converging from base to apex, in a very few as wide at apex as at base. The emargination of the last ventral segment at apex of the female is rather rare, *rufescens* being the only other species in which it occurs in the female and as in that species is often faint in some specimens. The size, the rather long hind femora armed below with a single tooth and the finely rugose prothorax with scarcely any punctures separates this from all other related species except *texana*. This latter has a smaller head, including the eyes, which are less prominent, a wider neck, different prothorax, which is strongly transverse, and the front tarsi of the male are normal.

Donacia rufescens Lacordaire.

Small, elongate; color of upper surface usually yellowish-testaceous with or without golden tint in the male, head often darker, females generally blue or bluish green, frequently entirely pale, dull; antennae pale, joints at apex more or less black; legs pale, all or only the posterior femora more or less black.

Head moderately constricted behind the eyes, which are large; densely and moderately finely punctate; median line deeply impressed; antennae extending to or beyond middle of elytra, third joint longer than first and nearly equal to the fourth joint.

Prothorax a little wider than long; not or slightly converging towards base; sides feebly sinuate; anterior angles distinct, not promi-

nent; posterior angles prominent; lateral tubercle indistinct or absent; anterior impression absent; median impression generally distinct and fine, not extending quite to apical margin; basal impression generally distinct; surface more or less shining in the male, generally dull in the female, disk with a few fine punctures and occasionally with a very fine rugosity along the median line, at base and laterally.

Elytra truncate at apex, outer angle more or less rounded; surface generally shining in the male and dull in the female; strial punctures variable, often coarse and as wide or wider than the intervals or the punctures smaller than the intervals; intervals occasionally more or less convex, generally very finely punctate and not rugose except at apex.

Body beneath very densely and very finely punctate and pubescent with short, white silken hairs; side pieces of prosternum nearly entirely pubescent; mesosternal process between middle coxae as wide or nearly as wide as the coxal cavities; legs normal. Length: 4.25–6 mm.

Male: Last ventral segment truncate and very distinctly impressed at middle of apex; last dorsal broadly rounded at apex; posterior femora incrassate in about apical three fourth, extending to the apex of elytra, armed below with a small acute tooth.

Female: Last ventral segment at apex more or less distinctly emarginate at middle, occasionally truncate; last dorsal elongate, subtriangular, rather broadly rounded at apex; posterior femora extending to the apex of the fourth ventral segment less strongly incrassate than in the male and in about apical half, armed below with a small tooth.

Massachusetts: Westfield, August (Knab); Lowell (Blanchard); Framingham, June (Frost); Bedford, September (Frost).

New York: Wyandanch, Long Island, August, September (Schott, Schaeffer); Silver Lake, Staten Island (Schaeffer); Peekskill (Sherman).

New Jersey: Lakehurst, September (Woodruff, Davis, Engelhardt); Clementon, August (Boerner); Hammonton, July (Wenzel); Bayhead (Nicolay); Budd's Lake, September (Bischoff); New Lisbon, July (Liebeck).

Pennsylvania: Bristol, September (Wenzel).

South Carolina: Swansea, August (Knab).

This species is generally found on the flowers and leaves of the white water lily, *Castalia odorata*. At Bristol, Pa., Mr. Wenzel found this species in numbers on *Castalia* and also on *Brasenia*.

This species and *militaris* are the smallest of our Donacias. The males of both can not be confused with each other principally on account

of the different structure of the posterior femora and tibiae; the females look superficially alike and also occur occasionally together on the same plant but the posterior femora are stouter in this species and are armed with a distinct tooth; the antennae also are stouter than those of the females of *militaris*.

The emargination of the last ventral segment of the females is a rare character and the only other species in which this occurs is *hypoleuca*. This emargination is, however, variable, in some it is a rather deep sub-triangular incisure, in others it is faint or entirely absent.

Donacia edentata Schaeffer.

Elongate, depressed; head and prothorax metallic; elytra castaneous without or with feeble metallic tint; antennae more or less blackish; legs brownish, femora more or less black above; underside brownish.

Head densely punctate, punctures moderate; not constricted behind the eyes which are moderately large; median impression deep; antennae narrow, elongate, reaching to middle of elytra or beyond, third joint as long or slightly longer than first.

Prothorax about one fourth wider at apex than long; apical angles obtuse; basal angles more or less prominent; sides feebly sinuate; sub-apical impression absent; median impression generally deep and entire from base to nearly to apex; sub-basal impression sometimes distinct opposite the scutellum and sometimes absent; lateral tubercle very faint or absent; surface rather dull, alutaceous, sparsely punctate and generally very finely rugose laterally.

Elytra truncate at apex, outer angles rounded; strial punctures moderately large and smaller towards apex; intervals more or less convex, smooth with scarcely any visible punctures, not rugose.

Body beneath very finely densely punctuate and very densely pubescent; mesosternal process between the middle coxae about half as wide as the coxal cavities; pubescent space of prosternal side pieces large. Length: 5.25–7.25 mm.

Male: Last ventral segment feebly depressed at middle of apex; last dorsal truncate at apex; posterior femora elongate, not quite reaching to apex of elytra, rather feebly incrassate and without tooth below.

Female: Last ventral and last dorsal segments sub-triangular, truncate at apex; posterior femora as in the male but slightly shorter.

New York: Crum Lake, June (Davis); Montauk Beach, Long Island (Schott).

New Jersey: Centerton, May (Liebeck); Malaga, May (Shoemaker); Burlington Co. (Castle); Clayton, June (Wenzel); Newfield, May (Wenzel).

Taken on the flowers and leaves of the white water lily, *Castalia odorata*, but Mr. Wenzel took a single specimen at Newfield, N. J., on the leaves of *Nymphaea advena*.

The range of this species is very limited at present but very likely will be found further south and probably north also if properly looked for. This species is readily identified by its rather narrow, feebly clavate, unarmed posterior femora and rather dull, alutaceous and finely punctate prothorax. It looks somewhat like *parvidens* but in this species the prothorax is generally more or less shining in both sexes, the antennal joints are shorter and stouter and the hind femora shorter and in both sexes armed below with a distinct, small tooth.

Donacia parvidens Schaeffer.

Moderately elongate, shining, pale or dark castaneous with or without metallic tint or more or less greenish-blue; head and prothorax cupreous, antennae black, joints more or less distinctly reddish at base; underside castaneous, sides often darker; legs castaneous, upper edge of femora and apex of tibiae in the darker specimens more or less black.

Head feebly constricted behind the eyes which are large and prominent; median line deeply impressed; surface densely and rather finely punctate; antennae extending to about the middle of elytra, third joint one third or one fourth longer than second.

Prothorax slightly wider at apex than long; sides sub-parallel and more or less distinctly sinuate; lateral tubercle feeble, apical angle distinct; basal angle moderately prominent; surface shining, scarcely alutaceous in the male, less shining and frequently dull and alutaceous in the female, rather sparsely punctate but often densely punctate along the deeply impressed and nearly entire median line and broad sub-basal impression; laterally, including the feeble tubercle, rather coarsely rugose.

Elytra shining; apices truncate, outer angle feebly distinct and more or less rounded; ante-median impression on each side of suture generally distinct; post-median impression mostly absent; intervals smooth with scarcely visible, minute punctures, more or less convex, especially towards apex; strial punctures moderately large, slightly smaller towards apex.

Body below densely clothed with short, white pubescence; pubescent space near anterior coxae large; mesosternal process between the middle

coxae about half as wide as the coxal cavities; posterior femora in both sexes armed below with a small tooth. Length: 5.5–8 mm.

Male: Posterior femora extending to the apex of the third ventral segment, moderately incrassate in more than apical half, armed below with a small tooth; last dorsal segment truncate at apex; last ventral segment with a feeble apical median impression.

Female: Posterior femora as in the male, but slightly shorter; last dorsal segment slightly longer with sides more converging towards apex than in the male, apex moderately broadly arcuate-truncate; last ventral sub-triangular and sub-acute at apex.

Minnesota: Lake Itasca, May (Univ. Minn.).
Michigan: Ann Arbor, June (Hubbell, Univ. Mich.); Oakland Co., June (Frankenfield).
Illinois: Chicago, June (Wolcott).
Indiana: Miller, July (Liljeblad).
Massachusetts: "Mass." (Knab coll.).
Rhode Island: Providence, June (Marshall).
New York: Yaphank, Long Island, May (Schaeffer); Wyandanch, Long Island, May (Schaeffer, Schott), December, sifting (Notman); Wading River, Long Island, June (Shoemaker).
New Jersey: Lahaway, May (Leng, Davis, Schaeffer); Lakehurst, May (Davis); Clementon (Castle); Hammonton, May (Wenzel); Jamesburg, April (Schott); Clayton and Bamber, June (Wenzel); Malaga, May (Wenzel).
Virginia: Fortress Monroe, April (Hubbard and Schwarz).
South Carolina: Isle of Palms, May (Laurent).

This is rather an early species and is found commonly on the flowers and leaves of the white water lily in the pine regions of Long Island and New Jersey.

This species is apt to be confused with *edentata* but is a shorter insect with shorter antennal joints, more shining prothorax and shorter hind femora armed in both sexes with a distinct, though small tooth, which is absent in the latter species. From *cincticornis*, which it somewhat resembles, it differs in shorter antennae, shorter and less strongly incrassate posterior femora armed below with a single tooth, more parallel form and narrower intercoxal process of the mesosternum.

Donacia cincticornis Newman.

Moderately elongate, subdepressed; color either entirely rufo-flavous, or with head metallic and prothorax black or bluish-black with

more or less distinct metallic tint especially at sides, or elytra with a feeble blue or greenish metallic tint; antennae generally pale, joints apically more or less black; underside black, or entirely or partly reddish; legs pale, upper edge of femora black or greenish metallic.

Head rather feebly constricted behind the eyes which are large and prominent; surface closely punctate, more densely anteriorly; median line deeply impressed; antennae reaching to or below the middle of elytra, second and third joints sub-equal, third generally slightly longer than second and usually shorter than the first joint.

Prothorax strongly transverse, not quite twice as wide at apex than long; sides gradually converging from apex to base; anterior angles distinct and moderately prominent; posterior angles prominent; surface shining with a few fine punctures on the disk; median line distinct, sometimes feeble or interrupted; anterior impression absent; basal impression distinct, rather broad and generally coarsely sculptured or strigate-rugose; lateral tubercle rather distinct, not prominent, usually well separated internally from the disk by a finely rugose impression.

Elytra shining; intervals smooth, more or less distinctly rugose towards apex; dorsal impressions feeble; apices truncate, rarely more or less distinctly emarginate, outer angles distinct and generally feebly rounded.

Body below finely and very densely pubescent, concealing entirely the surface color and punctuation; intercoxal process of middle coxae as wide or very nearly as wide as the middle coxal cavities; pubescent space near the anterior coxae wide. Legs variable in the two sexes. Length: 5–9 mm.

Male: Last dorsal segment truncate or very feebly, broadly emarginate at apex; last ventral segment truncate at apex and distinctly depressed at middle; posterior femora strongly incrassate in more than apical half, slightly curved in about basal fourth; below armed with a small anterior tooth and a larger posterior tooth, behind this latter a more or less distinct oblique serrate ridge, which is often broken up into one or more denticles; posterior tibiae internally serrate.

Female: Last dorsal segment subtriangular; last ventral segment slightly shorter than the dorsal, feebly arcuate at sides and at apex rounded; posterior femora with one tooth below, the oblique ridge behind this tooth generally more feeble and represented by one or more denticles; posterior tibiae rather feebly serrate or denticulate.

British Columbia: Victoria (Ent. Branch, Ont.).
Quebec: Rigaud, August (Chagnon).

Nova Scotia: Halifax (Perrin, Ent. Branch, Ont.).
Iowa: Clear Lake, July (Wickham); Cedar Rapids (Wickham).
Minnesota: Lake Bethel, Linwood, July (Kubicheck, Biol. Surv.).
Michigan: Washtenaw Co., June (Hubbell); Cheboygan Co., August (Hatch); Macatawa Beach, June (Wolcott).
Wisconsin: Bayfield (Knab coll.); Tenderfoot Lake, July (Marshall).
Illinois: "N. Ill." (Minn. Univ.).
Kansas: Cherokee Co., August (Hungerford and Beamer).
Missouri: St. Louis Co., September (Bock).
New Hampshire: Manchester (coll. Wickham); Claremont, July (Engelhardt).
Massachusetts: Chicopee, September (Knab); Forest Hills, October (Parshley); Framingham, June (Frost); Bedford, September (Frost).
Connecticut: South Meriden, August (Johnson).
New York: Yaphank, Long Island, June, July, September (Engelhardt); Wading River, Long Island, June (Shoemaker, Schott); Wyandanch, Long Island, September (Schaeffer); Staten Island, June (Davis); Long Lake, Hamilton Co. (Davis); Carmel, August (Squire); Saranac Lake, September (Shoemaker); Adirondacks, August (Davis); Brant Lake, Huron, August (Doll).
New Jersey: Budd's Lake, September (Bischoff).
Pennsylvania: Baoba, July (Wenzel).

From all reliable records this common species is generally found on the leaves and flowers of the white water lily but Mr. Wenzel found it at Bamber, N. J., on the leaves of the white and yellow lily and in Pennsylvania on *Brasenia* and says that wherever the latter plant is growing near *Castalia* this species gives preference to the former plant.

This species varies a good deal. The larger specimens, which are from British Columbia, Iowa, Minnesota, Michigan and Illinois, have the posterior femora, especially in the males, relatively more strongly incrassate than those of medium or small size. The anterior tooth of the hind femora is often very small, tubercle-like and only visible from an internal view, in the smaller females the ridge or denticles behind the tooth are occasionally scarcely visible even when viewed internally. The variation in color is indicated in the description. The anterior angles of prothorax are apparently always distinct and somewhat slightly prominent, tubercle-like. The punctuation of prothorax is generally fine and sparse, occasionally the punctures are more numerous but never close nor dense and the lateral tubercles are more or less distinct. The relative length of the third antennal joint is also subject to variation and

is occasionally, especially in some smaller specimens, equal in length to the first joint. The apices of elytra are squarely truncate, but specimens occur, though very rarely, with apices emarginate.

D. proxima is closely related to this species and remarks and comparisons will be found under the description of that species.

Several forms or varieties are separated, which, from a study of a large amount of material, are entitled to recognition, though one of them is rather weak and apparently only the extreme southern form of the variable typical insect.

var. TRYPHERA new var.

Like typical *cincticornis* in form and coloration, but slightly narrower, prothorax smoother, more even and very often, especially in females, rather wider, the lateral tubercles generally feeble and nearly obliterated. The color of upper surface is very frequently entirely dark blue, occasionally metallic green or golden. The hind tibiae of the males are always distinctly tuberculate internally. Length: 4.5–7 mm.

Type, male, and allotype, female, in the Museum collection.

New Jersey: Lakehurst, July (Engelhardt, Schott); Cape May Pt., June (Wenzel); Centerton (Liebeck).
South Carolina: Swansea, August (Knab).
Tennessee: Walnutlog, July (McAtee).
Alabama: Mobile, June (Loding).
Florida: Jupiter (Castle); Enterprise, April (Dietz); Lake Worth, April (Mrs. A. Bryan in Brit. Museum coll.).
Texas: "Tex." (Leng coll.).
Arkansas: Big Lake, June (McAtee).
Mexico: Toxpam (Sallé).
Guatemala: Livingston (Schwarz in coll. Nat. Museum).

As indicated in the remarks above this is by no means a clearly defined variety. Specimens from southern New Jersey or further south with smoother, more even, wider prothorax and entirely dark blue, metallic green or golden surface color, look distinct enough from the typical form but there are also specimens from the same localities which are doubtful to place. Some specimens are very close to the Cuban form, *antillarum*, and are apt to be confused with it and it is mainly for this reason that I have given the southern specimens a name. Through the kindness of Mr. Arrow I have seen one of the Mexican specimens recorded by Jacoby in the Biologia as *cincticornis*. The specimen from Guatemala agrees with this except that the third antennal joint is slightly longer. They agree best with *tryphera*, though differing slightly.

var. ANTILLARUM Suffrian.

Differs from the var. *tryphera* in slightly longer elytra with sides more parallel and more feebly narrowing towards apex; longer antennal joints, the third generally longer than the first; prothorax less transverse and lateral tubercle usually absent; the hind femora slightly less strongly incrassate and the armature below more feeble, especially the anterior tooth of the male and the serrate ridge behind the posterior tooth of both sexes and the hind tibiae of the male are not or very feebly denticulate internally. Length: 6–7 mm.

Cuba: "Cuba" (Suffrian) (American Museum coll.); L. de Ariguanabo, Habana, October (S. C. Bruner and C. H. Ballou).

The color of the Cuban specimens, which I owe to the kindness of Prof. Bruner, is dark castaneous with very feeble aeneous tint, head and prothorax more distinctly aeneous; the antennae are pale and the joints at apex narrowly infuscate; the underside and legs are slightly paler than the elytra, the femora blackish above; the lateral tubercles of prothorax are absent.

Prof. Bruner informs me that the specimens were collected on *Nymphaea flava* Leit.

var. TENUIS new variety.

Narrower and more elongate than typical *cincticornis* or var. *tryphera;* antennal joints slightly narrower and more elongate, third joint about as long as the first joint, the first three or four very often entirely black, the others reddish at base and black at apex. Prothorax narrower and frequently shorter; sides nearly parallel; apical angles not prominent; basal angles prominent; lateral tubercles obliterated; median line distinct but generally more or less interrupted at middle; sub-basal impression distinct; surface sparsely and rather finely punctate, laterally finely rugose; elytra squarely truncate at apex; strial punctures fine or moderate; color of prothorax and elytra generally the same, rufo-flavous, metallic green or blue. Body below and legs dark castaneous or paler; underside densely clothed with short, white pubescence. Hind femora more slender and less strongly incrassate, armature more feeble and in the males the anterior tooth is sometimes absent; tibiae feebly asperate internally. Length: 6–8 mm.

Type, male, and allotype, female, from Swansea, N. C. (F. Knab) in the National Museum collection, Washington, paratypes in collections of Cornell University and Brooklyn Museum.

Michigan: Roscommon Co. (Hubbard and Schwarz); Oakland Co., July (Frankenfield).
Wisconsin: Bayfield, August.
New York: Spencer Lake, August (Dietrich); Tupper Lake, August (Dyar); Peekskill (Leng coll.); Wyandanch, Long Island (Schott); Wading River, Long Island (Schaeffer).
Pennsylvania: Bristol, September (Wenzel); Baoba, July (Wenzel).
South Carolina: Swansea, August (Knab).
Florida: Enterprise, June (Hubbard and Schwarz).

Found in numbers on *Castalia odorata*, also on *Brasenia* by Mr. Wenzel.

This is a very distinct variety and readily known by its narrower prothorax, which is often also shorter, with feeble apical angles, narrower and more elongate elytra with smaller serial punctures, more elongate antennal joints and more slender and longer posterior femora. In its form it approaches *antillarum* which, however, has the prothorax similar to *cincticornis*.

var. RUFIPENNIS Lac.

Form and coloration as in *cincticornis* but head and prothorax often more brilliantly colored and elytra occasionally with a distinct golden tint; some or all antennal joints occasionally almost entirely black; prothorax shining and more or less finely strigate-rugose; elytra more uneven, apices very frequently emarginate; strial punctures generally larger than in the typical form. Length: 5–8 mm.

Ontario: "Ont."
Quebec: Rigaud (Ouellet ex Liebeck and Chagnon).
Iowa: Clear Lake, July (Schenck).
Michigan: Douglas Lake, July (Frankenfield); Calhoun Co., August (Emmons); Roscommon Co., (Hubb. & Schwarz coll.).
Maine: Monmouth, July (Frost).
New Hampshire: Claremont, July (Engelhardt).
Massachusetts: "neighborhood of Boston" (Lacordaire); Monterey, July (Frost).
New York: Britton's Upper Pond (Leng).
Pennsylvania: Bucks Co., July (Wenzel).
Virginia: Alexandria, July (McAtee and Alexander, Biol. Surv.); Virginia Shore opp. Washington (Boving and Craighead).
District of Columbia: Washington, July (Chittenden).

This variety and its larvae were found on *Potamogeton* by Boving and Craighead.

This is the same as *D. pulchella* of Leconte and was given a name by him as well as by Lacordaire on account of the different thoracic sculpture from that of *cincticornis*. The sculpture of prothorax, however, varies and is in some specimens only more or less distinctly visible at apex, base or sides, in others the entire thorax is strigate-rugose. The strial punctures of elytra are generally larger, intervals narrower and the apices of elytra more frequently emarginate than in typical *cincticornis*. The first three or four antennal joints are often black with scarcely a trace of the reddish color at base. Only a few specimens of the material examined have all the characters mentioned above, generally one or two are absent.

DONACIA PROXIMA Kirby.

Less elongate and moderately depressed; color of upper surface black with more or less distinct blue; purple or greenish metallic tint; prothorax and elytra at sides more distinctly metallic, elytral punctures generally golden-green; antennae generally entirely black; legs usually metallic, femora at base and occasionally the tibiae more or less reddish, upper edge of femora usually purple.

Head very feebly constricted behind the eyes, which are large and prominent; median line deeply impressed; posterior tubercles absent or feeble; surface anteriorly finely and densely punctate, posteriorly more coarsely and sparsely punctate; antennae reaching to about middle of elytra, second and third joints sub-equal, third a little longer than second but shorter than the first joint.

Prothorax transverse, wider at apex than long; sides converging behind; anterior angles distinct, usually slightly prominent; posterior angles prominent; lateral tubercles feeble or moderately distinct; median line finely impressed; anterior transverse impression narrow but usually distinct; posterior transverse impression broad, shallow and often indistinct; surface shining, disk with a few small punctures, laterally and often in the sub-basal impression rugose.

Elytra shining, truncate at apex; outer apical angle obliterated, broadly rounded; strial punctures moderately large, gradually smaller towards apex; intervals smooth and shining on the disk, laterally and at apex rugose; ante-median impressions usually feeble, post-median impressions generally absent.

Body below very finely and densely punctate and very densely pubescent with very short, white hairs, the pubescence hiding the surface

color and sculpture entirely; pubescent space near anterior coxae wide; posterior femora moderately incrassate in more than apical half; intercoxal process of mesosternum as wide as the coxal cavities. Length: 6.5–9 mm.

Male: Last ventral segment depressed at middle of apex; last dorsal segment broadly rounded at apex; posterior femora below with two teeth and behind the posterior one an oblique ridge which is generally broken up into one or more denticles, the anterior tooth occasionally very small and scarcely visible; posterior tibiae sparsely serrulate internally.

Female: Last ventral segment rounded at apex; last dorsal segment slightly narrower, rounded at apex; posterior femora below with one tooth and behind a more or less distinct serrate ridge, which is represented occasionally by a few denticles; posterior tibiae not serrulate internally.

British Columbia: Victoria (Ent. Branch).
Manitoba: Aweme, September (Criddle); Piquitenay, July (Wallis).
Idaho: Coeur d'Alene (Hubb. & Schwarz coll.).
Minnesota: Lake Ithasca, August (Graham).
Wisconsin: Tenderfoot Lake, Vilas Co., August (Marshall).
Michigan: Huron Mts., August (Hubb. & Schwarz); Douglas Lake, August (Hatch); Marquette, April (Hubb. & Schwarz); Macatawa Beach, June (Nat. Mus.).
Quebec: Montreal, July (Chagnon); Mt. St. Hilaire, July (Knab coll.); Rigaud (ex Liebeck); Brome Co., July (Winn ex Chagnon).
Nova Scotia: Truro, August (Matheson).
Newfoundland: Codroy, Little River, July (Wickham); Spruce Bruce, August (Engelhardt).
Maine: Wales, June (Frost); Monmouth, June (Frost).
New Hampshire: Mason, June (Ericson).
Massachusetts: Chicopee, September (Knab); Attleboro, July (Frost); Brookfield, July (Knab.).
New York: Pike (N. Y. State coll.); Huron, Brant Lake, August (Doll); Orange Lake, Orange Co., September (Schaeffer); Ausable Lake, Essex Co., July (Notman); Ballston Lake, August (Leonard).
Pennsylvania: Erie (Penn. St. coll.); Baoba, Pike Co., July (Wenzel). The yellow water lily is the host plant of this species.

This is a little shorter and broader insect than *cincticornis*, the posterior femora are shorter and relatively less strongly incrassate, the anterior impression of prothorax distinct and the outer apical angle of elytra is broadly rounded. The antennae are generally entirely black,

sometimes the joints are narrowly reddish at base, but apparently never broadly annulated as in *cincticornis*, and in color it does not vary to such an extent as the latter species does, at least I have not seen any specimens with rufo-testaceous or entirely rufous elytra. From all reliable records this species occurs never in ponds where only the white water lilies grow, while *cincticornis* is apparently never found in ponds where the white water lily is absent.

The following variety occurs:

var. CALIFORNICA Lec.

Like typical *proxima* in size and all its characters, except that the head, prothorax and elytra are distinctly metallic green or cupreous and the serial punctures of elytra are coarser.

British Columbia: Frazer (Weidt); Thurston Bay, June (Hopping).
Washington: Quilcene, August (Shannon).
California: "Cal." (Leconte); Cisco, June (Von Geldern ex Van Dyke).
Idaho: Coeur d'Alene (Hubbard and Schwarz).

This apparently is strictly a western race.

DONACIA CAERULEA Olivier.

Form and color of *proxima* but smaller; antennae entirely black or joints narrowly reddish at base; femora and tibiae metallic, at base reddish.

Head feebly constricted behind the eyes, which are large and prominent; median line deeply impressed; posterior tubercles feeble or absent; surface finely and densely punctate anteriorly, posteriorly less densely punctate; antennae reaching to about middle of elytra, third joint slightly longer than second and as long or nearly as long as the first joint, fourth joint nearly as long as the second and third together.

Prothorax transverse, wider at apex than long; sides converging behind; anterior angles distinct, often obtuse but apparently never prominent; posterior angles generally prominent; lateral tubercles generally obliterated; median line finely impressed, occasionally indistinct; anterior transverse impression more or less distinct; posterior transverse impression broad and shallow, often indistinct; surface alutaceous, dull, often with fine scratches on the disk, laterally more or less distinctly, finely rugose.

Elytra shining, truncate at apex; outer apical angle not distinct, broadly rounded; ante-median impressions feeble, post-median generally absent; serial punctures moderate, gradually smaller towards apex; intervals usually smooth and shining on the disk, laterally and at apex rugose.

Body below very finely and densely punctate and very densely pubescent with very short, fine, white hairs, the pubescence hiding the surface color and sculpture; pubescent space near anterior coxae wide; posterior femora moderately incrassate in more than apical half; intercoxal process of mesosternum as wide as the coxal cavities. Length: 6–7.5 mm.

Male: Last ventral segment depressed at middle of apex; last dorsal segment broadly rounded at apex; posterior femora below with two teeth and behind the posterior one an oblique serrate ridge, the anterior tooth generally very small and occasionally absent; posterior tibiae not serrulate internally.

Female: Last ventral segment rounded at apex; last dorsal segment slightly narrower and a little longer, rounded at apex; posterior femora below with one tooth and behind with a rather indistinct ridge, which is often scarcely visible even from an internal view.

New York: White Plains, May (Bueno); Van Cortlandt Park, May (Nicolay, Schaeffer); Baldwin, Long Island, May (Engelhardt); Staten Island (Linell).
New Jersey: Westville (Liebeck).
Pennsylvania: Philadelphia Neck, May (Liebeck).
Maryland: "near Washington, D. C.," May (Schott).

This is one of the earlier species found from the middle to the end of May on the leaves of the yellow water lily.

D. caerulea is made a synonym of *palmata* but the description, size and figure do not agree with the latter species. It is apparently the same as *episcopalis* Lac. which is wrongly considered to be a synonym of *proxima*. Lacordaire's description of *episcopalis* is very good and I have long hesitated to place it as a synonym of the more poorly described *caerulea*, but there is no other North American Donacia which would agree better with Olivier's description. Certain specimens with reduced femoral armature are apt to be mistaken for *texana* var. *minor* but *caerulea* is a slightly more robust insect with wider prothorax, shorter antennae and shorter hind femora and tarsi. In the material returned earlier this species is labelled *proxima episcopalis*.

Donacia magnifica Leconte.

Moderately elongate, depressed; color of upper surface shining and generally purple with sutural, lateral and apical margins and sides of prothorax metallic green, occasionally entirely metallic green with a

cupreous tint in certain parts; antennae generally black, occasionally the joints narrowly reddish at base; legs almost entirely metallic, femora usually purple and occasionally narrowly red at base.

Head rather feebly constricted behind the eyes, which are moderately large and moderately prominent; median line deeply impressed; posterior tubercles absent; surface densely and rather finely punctate; antennae rather stout, scarcely reaching to the middle of elytra in the male, second and third joints short, equal or sub-equal and together as long as the first joint.

Prothorax slightly wider at apex than long; anterior angles distinct, not prominent, more or less rounded; posterior angles not prominent; lateral tubercle more or less distinct but not prominent, sides below the latter feebly converging to base; surface rather coarsely and usually not densely punctate, punctures laterally denser and more or less confluent; median line deep; sub-basal impression generally feeble or absent.

Elytra truncate at apex, outer apical angles distinct but rounded; ante-median impressions generally distinct; post-median impressions absent or faint; strial punctures coarse, larger than the intervals, gradually smaller to apex; intervals usually smooth on the disk, rugose at sides and apex, occasionally with a few coarse rugae on the disk.

Body below densely and finely punctate and moderately densely pubescent with very short cinereous hairs; pubescent space near anterior coxae rather small; intercoxal process of mesosternum moderately wide, about half of the width of coxal cavities. Length: 5.5–7.5 mm.

Male: Last dorsal segment broadly truncate at apex; last ventral segment broadly rounded at apex; posterior femora extending to the apex of elytra or slightly beyond; strongly incrassate in about apical three fourths or less, armed below with two teeth, the inner, smaller one nearly opposite the larger outer tooth; behind the latter occasionally a feeble, scarcely serrate, oblique ridge.

Female: Last dorsal segment broadly rounded at apex, nearly truncate; last ventral segment more narrowly rounded at apex; posterior femora reaching to the apex of the third ventral segment, less strongly incrassate than in the male, armed below with a rather small tooth and behind this occasionally a feeble, oblique ridge.

This species has been taken in Manitoba (Wallis) and Alberta (Carr) on *Sagittaria*.

Alberta: Edmonton, July (Carr).
Manitoba: Aweme and Winnipeg (N. Criddle); Winnipeg (Wallis).
Quebec: Rigaud, July (Ouellet); Eustache, August (Ouellet); Rouville Co., Mt. St. Hilaire (Knab coll.).

Michigan: Lake Superior (Leconte).
Colorado: Alamosa (Leconte coll.).

As already pointed out in Journ. N. Y. Ent. Soc., vol. XXVII, p. 309, this is not a variety of *proxima* or *cincticornis* but is distinct from both. The head is relatively smaller and more distinctly prolonged behind the eyes, which latter are smaller and less prominent. The prothorax is less transverse and in form more nearly as in *rugosa*, the last dorsal segment of the female is different, the intercoxal process of mesosternum narrower and the teeth of the posterior femora of the males are nearer together. It is more closely related to the European *versicolorea* and allies than to any of the American species.

Donacia hirticollis Kirby.

Moderately elongate, somewhat robust and feebly depressed; color of upper surface metallic blue, green or purple, laterally and the prothoracic impressions more or less distinctly cupreous or golden-green, occasionally elytra flavous; antennae black; legs metallic green.

Head moderately constricted behind the eyes, which are rather large and prominent; median line deeply impressed; posterior tubercles feeble or absent; surface densely and finely punctate, antennae moderately long, not reaching the middle of elytra; second and third joints small, together as long or slightly longer than the first joint.

Prothorax as wide at apex as long; anterior angles more or less distinct, occasionally oblique; posterior angles feebly prominent; lateral tubercle distinct; sides below latter more or less distinctly arcuate; surface uneven, densely punctate and pubescent with short grayish-white hairs; median line and anterior transverse impression more or less distinct.

Elytra truncate or emarginate at apex; ante-median and post-median impressions distinct or absent; strial punctures moderate, gradually smaller towards apex; the fine, narrow sutural bead absent; surface sculpture variable from smooth and shining to more or less distinctly rugose and less shining.

Body below densely and finely punctate and densely pubescent with short, grayish-white hairs; intercoxal process of mesosternum rather narrow, less than half the width of the cavities; posterior femora rather feebly clavate, extending to the apex of the fourth ventral segment or slightly shorter, armed below with a small tooth, which is often absent in the female. Length: 6–9 mm.

Male: Last dorsal segment truncate at apex, last ventral segment truncate and more or less distinctly depressed at middle of apex.

Female: Last dorsal and ventral segments broadly rounded at apex.

This species is taken on *Potamogeton* at Rigaud and Eustache in Quebec (Ouellet) and on *Nuphar polycephalum* at Cowichan Lake in Ontario (Ent. Branch) according to the labels on the specimens.

Alaska: Cordova, August (Kusche in coll. Van Dyke and Nat. Mus.).
British Columbia: Penticton, May (Wallis); Quamichan Lake, Vanc. Island (Wickham).
Washington: "Wash. Terr." (Morrison).
California: Lake Tahoe (Mann).
Alberta: Cooking Lake, July (Carr).
Manitoba: Winnipeg and Piquitenay, July (Wallis); Aweme, July (Criddle).
Iowa: Spirit Lake (Wickham).
Wyoming: "Wy." (Minn. Univ.).
Utah: Parowan Mts., July (Knaus).
Michigan: Escanoba, July (Hubbard and Schwarz); Huron Mts., August (Hubbard and Schwarz); Detroit and White Fish Pond (Hubbard and Schwarz).
Ontario: Cowichan Lake, September (Ent. Branch).
Quebec: Rigaud, July and August (Ouellet); Boucherville, June (Ouellet); St. Johns Co., July (Chagnon); St. Denis (Knab coll.).
Hudson Bay Terr.: "Huds. B. Terr." (Nat. Mus.).
Maine: Cumberland Co., June (Nicolay); Monmouth, June (Frost).
Massachusetts: Northborough, May (Frost, sifting).
Connecticut: Hamden (Walden); Middlebury, May (Zappe).
New York: Buffalo; Catskill; Rochester (Moore); Yaphank, Long Island, June (Engelhardt).
New Jersey: Ramsay (Lutz); Lakehurst, July (Engelhardt).

This species may be known by its densely, finely punctate, uneven and pubescent prothorax, unicolored metallic legs, relatively robust form and elytral apices squarely truncate or emarginate.

The pubescence of the upper surface of prothorax is sparse and short and easily overlooked in some specimens; however, the pubescence covering also entirely the side pieces of the prosternum is always distinct and more evident.

Specimens occur with typically colored ones which have the elytra flavous; in these the anterior angles, sometimes the basal margin more or less and partly the underside of prothorax are also flavous but the legs are apparently never bi-colored in these paler specimens. The

very fine, narrow sutural bead of the elytra is absent in this species. In all other North American Donacias, with the exception of *harrisi*, it is present, though often partly obliterated in *militaris*.

Donacia pubescens Leconte.

Moderately elongate, slightly depressed; above and below with golden-yellow pubescence; color rufo-flavous, without or with a more or less distinct golden or metallic green tint; antennae entirely pale, partly black or entirely black; head, excepting the mouth parts, generally metallic green.

Head rather feebly constricted behind the eyes, which are moderately large and moderately prominent; median line deep; surface sculpture obscured by the dense pubescence; antennae rather short, extending not quite to the middle of elytra, third joint longer than second and as long or slightly shorter than the first joint.

Prothorax about one half wider at apex than long; sides gradually converging towards base; anterior angles distinct but not prominent; basal angles not prominent; median line fine, generally obscured by the dense pubescence; lateral tubercles more or less distinct; surface densely pubescent obscuring the punctuation.

Elytra closely pubescent; ante-median impressions generally distinct, post-median faint or absent; apices more or less distinctly rounded; strial punctures moderate; lateral marginal ridge, which is usually distinct and separating the epipleurae, absent in this species.

Body below finely and densely punctate; pubescence moderately dense; intercoxal process of mesosternum rather narrow. Length: 6–7 mm.

Male: First ventral segment moderately deeply excavate at middle; last ventral segment at apex feebly depressed at middle; posterior femora feebly clavate, armed below with two small teeth; last dorsal segment broadly rounded at apex.

Female: First ventral segment feebly depressed at middle; last ventral segment rounded at apex; posterior femora with one very small tooth below, which is occasionally absent; last dorsal segment subtriangular, rounded at apex.

Oregon: "Oreg." (Mus. Comp. Zool.).
Manitoba: Winnipeg and Husavick, July (Wallis).
Quebec; Bondville, July (Chagnon); St. Hilaire, July (Knab coll.).
British Columbia: Vanc. Island (Wickham).
California: Lake Co. (Van Dyke).

South Dakota: Brookings (Wickham).
Minnesota: Lake Itasca, June (Graham, Minn. Univ.).
Wisconsin: Tenderfoot Lake, Vilas Co., July (Marshall).
Michigan: Port Huron, June (Hubbard and Schwarz); Detroit, June (Hubbard and Schwarz); Douglas Lake, Cheboygan Co., June and August (Hatch); Carp Lake, July (N. Y. State Museum).
Illinois: Chicago, June (Knab coll.).
Indiana: Pine, May (Wolcott); Clarke, July (Wolcott); Miller, June and July (Liljeblad).
New York: "N. Y." (Leconte coll.).
Texas: Devil's River (Leng coll.).
Occurs on pickerel weed (Blatchley).

This is the only North American species which has the elytra pubescent and is on this account readily recognizable. The pubescence is occasionally cinereous. The ridge which generally separates the epipleurae from the elytra is absent in this species.

In the list of species in Genera Insectorum, family Donacidae by Clavareau and Jacoby, *pubescens* is wrongly placed in *Plateumaris*.

Donacia quadricollis Say.

Moderately elongate, feebly depressed; color of upper surface variable, from entirely ferruginous-yellow to entirely cupreous, metallic green or golden-green; legs pale, femora more or less metallic towards apex; antennae pale or entirely black, last joint or the last two or three paler; below entirely pale or metallic with the last ventral segment and occasionally one or two of the preceeding segments at middle reddish.

Head rather feebly constricted behind the eyes, which are moderately large and moderately prominent; median line deeply impressed; anterior tubercles feeble; surface densely and finely punctate; antennae reaching to about middle of elytra, third joint distinctly longer than second but scarcely as long as the first joint.

Prothorax short, about twice as wide at apex as long; sides converging from apex to base; lateral tubercles and median impressed line absent or feeble; surface densely rugose; anterior angles more or less rounded, posterior angles moderately prominent.

Elytra truncate or arcuately truncate at apex, outer angle usually rounded, sutural angle occasionally with a small tooth; strial punctures coarse, towards apex a little finer; intervals more or less rugose; lateral marginal ridge absent; epipleurae transversely convex and wider than the last elytral interval; ante-median impressions more or less distinct, post-median impressions faint or absent.

Body below rather densely pubescent; intercoxal process moderately wide; posterior femora in both sexes moderately elongate, extending to about the apex of fourth ventral segment, distinctly but not strongly incrassate, narrower at base than at apex and armed below with a small tooth. Length: 6–9 mm.

Male: Last ventral segment with a distinct impression at middle of apex; last dorsal truncate at apex.

Female: Larger and more robust than the male; last ventral segment sub-triangular; last dorsal truncate or sub-truncate.

Hudson Bay Territory: "Huds. B. Terr." (Leconte coll.).
Ontario: "Ont." (Entom. Branch, Ottawa).
Iowa: Clear Lake, July (Shimek).
Missouri: Creve Coeur Lake (Bock in coll. Knab).
Minnesota: Lake Itasca (Graham); Ely, September (Kubichek); Swan Lake, July (Mabbot); Rush Lake, August (Kubichek, Metcalf).
Michigan: Douglas Lake, Cheboygan Co. (Hatch); Calhoun Co., August (Emmons); Carp Lake (N. Y. S. M.); Detroit (Hubbard and Schwarz).
Wisconsin: Tenderfoot Lake, Vilas Co., June (Marshall).
Illinois: "Illinois" (Knab).
Indiana: Lake Co. (Knab).
New York: Spencer Lake, August (Dietrich); Rochester (Wendt); Plattsburg.
Reported to occur on bulrushes (Knab).

D. quadricollis Say is not a synonym of *subtilis*, the "feet dull rufous . . . all the thighs a little dusky above" never occurs in this common species, which has the posterior femora uniformly metallic. The coloration of the legs as well as the rest of Say's description agrees very well with the more recently described *D. curticollis* Knab, but with no other North American Donacia. In regard to the coloration of the legs and sculpture of prothorax, etc., *D. rugosa* would answer Say's description but in that species the second antennal joint is decidedly shorter than the third and never "but little shorter than the third."

This apparently also is *D. cupraea* Kirby, which latter is not what Dr. Leconte identified as that species. In one of his letters Mr. Arrow called my attention to our wrong identification of Kirby's species stating that it is not a *Plateumaris* but a true *Donacia* and from his notes on the type it seems to be the same as Say's *quadricollis*. When I returned the British Museum material Mr. Bryant, to whom my inquiries were

referred later by Mr. Arrow, wrote me that the specimen I labelled *quadricollis* differs from the type of *cupraea*. This species, however, varies a good deal like most of our North American species and with only two specimens at hand of different coloration and representing possibly the two sexes, the differences between the two may appear strong enough to consider them distinct. However, Mr. Arrow's remarks on the type of *cupraea* which he compared with *subtilis* but with shorter prothorax, the latter and elytra more coarsely sculptured and in addition the pale legs leaves very little doubt that *cupraea* Kirby is the same as Say's *quadricollis*.

The lateral margin of the elytra is in all our species well defined by a more or less distinct ridge separating the epipleurae from the elytra, and is in some species acute in its entire length or nearly so, or transversely rounded in others, and the marginal row of punctures is generally quite deeply impressed. In *quadricollis* and also in *pubescens* this elevated lateral margin is absent which separates them at once from all our species. Besides the more robust form, not pubescent prothorax and elytra, broader and occasionally coarsely punctate prothorax, *quadricollis* has the elytral epipleurae wider than the last elytral interval; in *pubescens* both are of about the same width. In the rest of our species the elytral epipleurae are generally narrower than the last elytral interval. In *pubicollis* the elevated lateral margin is rather poorly defined but generally distinct in about basal half.

Donacia rugosa Lec.

Elongate, feebly depressed; color of upper surface cupreous, aeneous, metallic green or blue; antennal joints reddish, at apex more or less black, frequently all the joints are black or very nearly so; legs reddish, femora with or without apical metallic space; body below metallic, last ventral segment frequently more or less red.

Head rather feebly constricted behind the eyes, which are rather large; median line deep; posteriorly not or feebly tuberculate; surface densely punctate-rugose; antennae elongate, extending beyond the middle of elytra, slightly shorter in the female, third joint much longer than second and about as long or longer than the first joint.

Prothorax about one half wider than long at apex; sides narrower behind the lateral tubercles, more or less parallel or feebly diverging to base; anterior angles more or less distinctly oblique, generally rounded; posterior angles usually prominent; lateral tubercles occasionally feebly distinct, often absent; surface rather coarsely punctate, the punctures

at sides and occasionally on the disk confluent; median impressed line absent or feeble.

Elytra more or less shining with scarcely a trace of coarse, transverse rugae; apices truncate, exterior angles rounded; strial punctures large at base, becoming gradually smaller towards apex; intervals moderately coarsely rugose towards base, more finely near apex; lateral margin more or less acute; ante- and post-median impressions more or less distinct.

Body beneath densely and finely punctate; pubescence cinereous, not very dense, permitting the metallic surface color to be seen; pubescent space near anterior coxae small; intercoxal process of mesosternum variable in the two sexes; posterior femora extending to or beyond the apex of third ventral segment, distinctly clavate in more than apical half, at base narrower than apex; below armed in both sexes with a small tooth, which is occasionally indistinct or absent. Length: 6–7.5 mm.

Male: Intercoxal process of mesosternum slightly narrower than half the width of the coxal cavities; last ventral segment distinctly depressed at middle of apex; last dorsal segment truncate or feebly emarginate at apex.

Female: Intercoxal process of mesosternum about half as wide as the width of the coxal cavities. Last ventral segment gradually narrower towards apex, which is rather broadly rounded; last dorsal segment similar but sub-truncate at apex.

Michigan: Whitehall, July (Liljeblad).
Massachusetts: Stoughton, August (Blake); Southboro, June (Frost).
New York: Saranac Lake, September (Shoemaker); West Nyack, August (Bequaert); Hamilton Co.; Staten Island, July (Leng).
New Jersey: Atsion, August (Wenzel); Swartswood Lake, September (Nicolay).
District of Columbia: Washington, July (McAtee).
Virginia: Alexander Co., July (Shoemaker).
Florida: Enterprise, May (Hubbard and Schwarz).

Sagittaria is given as the host plant of this species by Mr. Leng and *Pontederia cordata* by Mr. Wenzel; the latter sent me the following note: "Mate during the day. Found only on the host plant growing in clear water with a hard sand and gravel bottom, in such places the plants do not grow as luxurious as in a mud bottom."

Though rather closely related to *subtilis*, *rugosa* differs from that

species by its bi-colored legs, the posterior femora relatively more strongly clavate and the longer third antennal joint. The females are generally a little more robust than those of *subtilis* and in both sexes the tooth of the posterior femora is occasionally very small or even sometimes absent.

DONACIA ASSIMILIS Lacordaire.

Elongate, feebly depressed; color of upper surface metallic green; antennae entirely black or some or all the joints very narrowly reddish at base; legs reddish, femora occasionally more or less metallic at apex; last ventral segment more or less red.

Head distinctly contricted behind the eyes, which are rather large and somewhat prominent; median impressed line deep; posterior tubercles absent; antennae elongate, reaching beyond the middle of elytra, third joint distinctly longer than the second and as long or longer than the first joint.

Prothorax very nearly as in *rugosa* in form but sides more narrowing to base; anterior angles feebly oblique and more or less rounded; posterior angles prominent; lateral tubercles very feeble or absent; median impression rather broad but shallow, not extending to apex nor base; anterior transverse impression faint, sub-basal impression feeble or absent; surface rather coarsely and sparsely punctate on the disk, laterally rugose.

Elytra shining, truncate or sub-truncate at apex, outer apical angles broadly rounded; strial punctures moderately coarse near base, finer near apex; intervals smooth, more or less rugose at sides and towards apex; lateral margin more or less acute; ante- and post-median impressions feeble or absent.

Body beneath densely punctate; pubescence cinereous, not dense and not obscuring the metallic surface color; pubescent space near the anterior coxae small; intercoxal process of mesosternum as wide or nearly as wide as the middle coxae; posterior femora unarmed in both sexes, rather strongly clavate and reaching to the apex of the third ventral segment, at base much narrower than at apex. Length: 6–7.5 mm.

Male: Last ventral segment distinctly depressed at middle of apex; last dorsal segment truncate at apex.

Female: Last ventral segment broadly rounded at apex; last dorsal segment truncate at apex, apical angles broadly rounded.

New Jersey: Clementon (Boerner ex Nicolay).
Maryland: Hyattsville, August (Knab).

This is a very distinct species and entirely different from *palmata* with which it has been placed as a synonym. The species which I described as *glabrata* is the same as *assimilis*.

It is very similar to *rugosa* but is a little more slender insect with smooth elytra, generally with a distinct, longitudinal thoracic impression which is somewhat broad and shallow. The hind femora of both sexes are unarmed.

DONACIA BIIMPRESSA Melsheimer.

Elongate, sub-convex; color variable, blue, bluish-green, purple, black or cupreous; antennae black, joints at apex more or less reddish, rarely entirely black or except the metallic first joint entirely reddish; legs sometimes entirely metallic, usually the femora towards base, tibiae and tarsi more or less reddish.

Head feebly constricted behind the eyes, which are small and moderately prominent; median line fine; posterior tubercles more or less distinct; surface anteriorly generally punctate-rugose, posteriorly the punctures are usually more distinct and the intervals between the punctures finely rugose; antennae reaching to the middle of elytra or nearly so, third joint variable, equal or sub-equal to the second and a little shorter than the first, or slightly longer than the second and equal to the first.

Prothorax very variable in form and sculpture; about as wide or wider at apex than long; lateral tubercles more or less distinct, sides below these either distinctly converging to base or not and often more or less distinctly sinuate; anterior angles generally distinct, slightly projecting, but never acute, occasionally oblique or rounded; posterior angles prominent, median line fine; surface finely and sparsely punctate with fine transverse and oblique lines between the punctures to coarsely, densely and in some part confluently punctate.

Elytra moderately convex, feebly depressed above; impressions feeble; truncate or subtruncate at apex; strial punctures moderately large, slightly smaller towards apex; intervals finely transversely rugose from base to apex, denser and scarcely finer at apex, near the scutellum frequently finely punctate.

Body below very sparsely pubescent with rather short hairs which are almost invisible at middle of first ventral segment, punctuation not dense, punctures moderate, varying to more distinctly pubescent and punctures much finer and very densely placed, especially on first ventral segment; intercoxal process of mesosternum narrow; posterior femora generally short, extending to the apex of second ventral segment, occa-

sionally a little longer, moderately clavate, at base scarcely as wide as at apex, armed below in both sexes with a small tooth. Length: 5.5–9 mm.

Male: First ventral segment not or more or less distinctly depressed at middle; last ventral segment distinctly depressed at middle of apex; last dorsal segment truncate at apex.

Female: Last ventral segment sub-acute or rounded at apex; last dorsal segment broadly rounded at apex, occasionally emarginate.

Canada: "Canada" (Brit. Mus. Nat. Hist., one specimen).
South Dakota: Sioux Falls, May (Soltau).
Nebraska: Lincoln, May (Soltau).
Iowa: Iowa City (Wickham).
Minnesota: Ramsey Co. (Minn. Univ.).
Michigan: Washtenaw Co., May (Hatch); Cavanagh Lake, May (Hubbell); North Shore, Barton, May (Hubbell); Oakland Co., May (Hatch).
Illinois: "Ill." (coll. Leng).
Wisconsin: "Wisc." (coll. Leng); Cranmoor, June (Hooker, U. S. N. M.).
Massachusetts: Northampton, June and Springfield, May (Knab); Framingham, May (Frost).
Connecticut: New Haven, May (Walden).
New York: Ithaca, May (Cornell Univ.); Peekskill, May (Sherman); Wallface Mts., July (Nicolay); White Plains, May (Pollard); Van Cortlandt Park, May (Nicolay); Rockaway Beach, Long Island, May (Engelhardt).
New Jersey: Lahaway, May (Olsen); Ramsey, May (Notman); Newfoundland, May (Schott); Great Notch (Nicolay).
Pennsylvania: Delaware Co. and Lancaster Co. (Castle); Hummelstown, May (Knull).
North Carolina: Raleigh, May (Brimley, Knab coll.).
Virginia: Falls Church, April (Chapin); Fredericksburg, June (Hubbard and Schwarz); Fairfax Co., June (Shoemaker).
Maryland: Lakeland, May (Knab).
District of Columbia: Washington, May (Hubbard and Schwarz).
Florida: "Fla." (coll. Leng).

Taken on *Carex stricta* by Mr. Frost and Mr. Wenzel writes: "Found in numbers by sweeping various grasses, Bur Reeds (Sparganiaceae) and Sagittaria in swamp fed by tide water."

This is our most variable and troublesome species, especially in the

form and sculpture of prothorax in which they vary so much that two or three specimens could be selected, which look distinct enough from each other to be considered good species. However, intermediate specimens make it very difficult to separate even certain specimens as a variety. Moreover, there are specimens so close to some *porosicollis* which are troublesome to place correctly. In certain specimens the prothorax in form and sculpture is very much like that of some specimens of *porosicollis*, in a few as in *tuberculifrons* and others more or less like *distincta*. I have given a name to the more extreme variation which I have from several localities and which I hope will make it a little easier to determine this species.

Dr. Leconte in his revision identifies Melsheimer's *biimpressa* (blue form) and *aurichalcea* (cupreous form) as *emarginata* and specimens of the latter are so labelled in his collection. However, Melsheimer describes the hind femora of both as reddish at base—entirely metallic in *emarginata*—which first called my attention to the possible misidentification of Melsheimer's species. Melsheimer's types are supposed to be in the Leconte collection but as stated above the specimens so labelled are *emarginata*. At the suggestion of Mr. Banks I looked for Melsheimer Donacias in the general collection and found there the two blue specimens (*biimpressa*) and a cupreous specimen (*aurichalcea*) which agree in every respect with the descriptions and are without doubt his types. They are not *emarginata* but the same as *torosa* Lec. The *distincta* of Mr. Leng's revision is not Leconte's species but the cupreous form of this species. The elevated sutural margin of elytra near apex is said by Mr. Leng to be sinuate in his *distincta* but this is a mistake, the sutural margin is as in *subtilis* and allies.

The blue, bluish-green, purple and black specimens occur more commonly in the males than in the females, as I have seen only two blue females among the numerous specimens from a number of different localities.

Typical *biimpressa* have the ventral segments, especially the first, rather sparsely punctate and very sparsely pubescent with very short, white or cinereous hairs, which are often almost invisible at middle of first ventral segment; prothorax generally as wide at apex as long, or very nearly so, the sides behind the lateral tubercles more or less converging towards base and scarcely sinuate, the punctuation very variable from very fine and sparse with finely impressed lines between the punctures to relatively moderately coarsely and closely punctate; the intervals of the elytra moderately finely rugose, near the scutellum

generally not rugose, but with more or less distinct fine punctures; the color bluish-green, blue, purple, black or cupreous; the first ventral segment of the males generally flattened, apparently never broadly depressed along middle. The punctuation and pubescence of the ventral segments and the elytral sculpture varies very little in the blue, purple or black specimens and can be taken as a guide in placing doubtful cupreous specimens. However, in a large series cupreous specimens will be found which are intermediate between typical *biimpressa* and var. *limonia*.

var. LIMONIA new variety.

Differs from typical *biimpressa* in having the first ventral segment, especially at middle, more densely and finely punctate, the punctures at middle often finer than those on the second segment, esp. in the males, pubescence short, but more distinctly visible at middle; prothorax generally wider esp. below the tubercle, and occasionally shorter, the sides more or less sinuate and feebly converging behind the lateral tubercle; the punctuation is generally rather coarse, the punctures sometimes more or less confluent; the intervals of the elytra are generally more finely rugose from base to apex than in the typical form; the color is apparently always cupreous and the first ventral segment of the male is more or less distinctly depressed along the middle.

The type is a male from Indian Pass, N. Y., and the allotype a female from Van Cortlandt Park, N. Y.

New York: Ithaca, May; Concord, May; Indian Pass, July (Quirsfeldt); Van Cortlandt Park (Schaeffer).
Massachusetts: Framingham, May (Frost); Southboro, May (Frost).
New Hampshire: Claremont, July (Engelhardt).
Maine: Wales, June (Frost).
Michigan: Livingston Co., May (Hatch).

This variety is much more variable than the typical form in regard to the elytral sculpture, punctuation of the ventral segments and form of prothorax. A few specimens from Livingston Co., Michigan, are very close to *porosicollis* in the form of prothorax and having the elytral intervals and the ventral segments as finely and densely sculptured as in certain specimens of that species. Both *porosicollis* and *biimpressa* were taken at the same time in that locality. They possibly interbreed and these troublesome specimens are apparently hybrids of the two species.

From allied species *biimpressa* and its variety *limonia* will be readily known by its small eyes, relatively wider neck, absence of coarse rugae

and finely rugose intervals of elytra, sparse pubescence of the ventral segments and the shorter, bicolored posterior femora.

Donacia porosicollis Lacordaire.

Elongate, slender, feebly depressed; color of upper surface cupreous; antennae reddish, joints above more or less black, below some or all reddish; legs reddish, femora in apical half more or less cupreous; body below cupreous, last ventral segment occasionally more or less reddish at apex.

Head feebly constricted behind the eyes, which are moderately large; median line deeply impressed; posterior tubercles more or less distinct; ocular orbits distinct; surface rugose; antennae reaching to or beyond the middle of elytra, third joint distinctly longer than second and as long or slightly shorter than first.

Prothorax as wide at apex as long, occasionally one fourth longer than wide; sides feebly narrowing from apex to base; anterior angles distinct, not or distinctly projecting laterally; basal angles more or less prominent; lateral tubercles feeble or absent; median impressed line fine and generally distinct; surface more or less densely, coarsely or moderately coarsely punctate, intervals with finer punctures or finely rugose.

Elytra sub-convex; apices truncate; strial punctures moderate at base, gradually smaller towards apex, where they are much smaller than at base; intervals finely striate-rugose, this sculpture scarcely finer at apex than at base; ante-median and post-median impressions generally very feeble or absent.

Body below very densely and finely punctate; pubescence white or yellowish-white and rather dense, concealing nearly the surface color of the first ventral segment, especially in the male, the pubescence consisting of a little coarser and longer hairs than in *subtilis;* intercoxal process of mesosternum narrow; posterior femora extending to the apex of the third ventral segment or slightly beyond, generally feebly incrassate and armed below with a small tooth. Length: 6–8 mm.

Male: First ventral segment generally depressed and rather densely pubescent; last ventral segment distinctly depressed at middle of apex; last dorsal segment truncate at apex.

Female: Last ventral and dorsal segments rounded at apex.

Ontario: Hastings Co. (Ent. Branch).

Michigan: Livingston Co., May (Hatch); Washtenaw Co., May (Hatch); Marquette (Hubbard and Schwarz); White Fish Point and Lake Superior (Hubbard and Schwarz).

Illinois: "Ill." (Univ. Minn.).
Wisconsin: Cane Co., May (Marshall).
Minnesota: St. Anthony Park (Univ. Minn.).
Maine: Cumberland Co., May (Nicolay).
Massachusetts: Tyngsboro (Blanchard).

Specimens from Onah, Manitoba (Wallis), and also from Washington, D. C. (Schwarz, Beyer and Knab), are doubtfully placed here for the present. They are not typical.

Egg, larva and cocoon on *Juncus* (H. S. Hubbard). Sweeping grass in marsh (M. H. Hatch). The Manitoba specimens referred doubtfully here were found feeding in the flowers of *Caltha palustris* by Mr. J. B. Wallis.

The prothorax is very variable in form and sculpture in this species. Fully developed specimens have the anterior angles projecting laterally, in others in which also the prothorax is relatively narrower the anterior angles are not projecting. The punctures are moderately large and the intervals between these are often finely punctulate or rugulose. The elytra are in the majority of specimens rather more elongate and also generally more finely transversely rugose than in the other species, but this sculpture is variable and is nearly as fine also in some *biimpressa*. The third antennal joint and the hind femora are in some specimens longer than in *biimpressa* but in others are very much like those of *biimpressa*. Lacordaire describes the coloration of the antennae as "rougeatre assez obscur, paraissant même noiratres sous certain aspects." Seen from the sides or below they are reddish but above are more or less blackish in most of the specimens. The pubescence of the underside is dense and in fresh specimens almost obscuring the cupreous color, especially on the first ventral segment of the male, the hairs are a little coarser and slightly longer and the eyes are also slightly larger than in *biimpressa limonia*. The very fine and very dense transverse strigosity of the intervals gives the elytra a dull appearance.

The few Manitoba specimens seen are mostly more robust, the pubescence of the underside less dense and are more like *biimpressa limonia* than *porosicollis*. The eyes are less prominent. However, one of the specimens, a female, is very nearly typical. The specimens from Washington, D. C., are nearer *porosicollis* than to *biimpressa limonia*. They are possibly entitled to a varietal name but are placed at present doubtfully here till more material of both forms and of typical *porosicollis* is available.

DONACIA DISTINCTA Leconte.

Moderately elongate, depressed; color including legs and antennae aeneous, cupreous or rarely bright metallic green.

Head relatively deeply constricted behind the eyes, which are prominent and moderately large; median impressed line deep; posterior tubercles generally distinct; surface densely punctate with moderate punctures; antennae extending to about the middle of elytra or slightly beyond, second and third joints small, the latter slightly longer than second, occasionally nearly as long as the fourth joint.

Prothorax about as wide as long or slightly wider; sides rather feebly converging towards base; anterior angles distinct, sometimes prominent and more or less projecting laterally; posterior angles more or less prominent; lateral tubercles moderately distinct; median impressed line distinct; surface sculpture variable from sparsely and somewhat finely punctate with finely impressed transverse or oblique lines between the punctures to rather coarsely and densely punctate, laterally strigate-rugose.

Elytra depressed; apices truncate, outer angle broadly rounded; ante-median impressions generally very distinct; post-median impressions less deep and more or less distinctly continued to nearly to apex; laterally there is also frequently a shallow, elongate impression; surface without coarse transverse rugae but intervals finely transversely strigate-rugose from base to apex, dense, but scarcely finer at apex and sides than in basal half; serial punctures moderate, finer towards apex.

Body below closely punctate with small punctures; pubescence white, rather short and not dense; pubescent space near anterior coxae small; intercoxal process of mesosternum slightly narrower than half of the width of the cavities; posterior femora reaching to the apex of the third ventral segment, armed below in both sexes with a moderate tooth. Length: 7–9 mm.

Male and female differ very little except that the females, as usual, are stouter, have shorter antennae and the last ventral is not truncate and impressed at middle but rounded at apex. The last dorsal segment of both sexes is emarginate at middle of apex.

Alberta: Edmonton, June and July (Carr).
Manitoba: Husavick, September (Roberts); June (Criddle); Aweme, July (Criddle).
Ontario: Lac des Mille Lacs, Thunder Bay (Ent. Branch).
Hudson Bay Territory: "Huds. Bay" (Brit. Mus. Nat. Hist.).

Michigan: Lake Superior (Leconte); White Fish Point (Hubbard and Schwarz); First Sister Lake, Washtenaw Co., May (Hubbell).
Wisconsin: Bayfield Co., June (Marshall).
Maine: Monmouth and Wales, June (Frost).
Massachusetts: Tyngsboro (Blanchard).

The *distincta* of Mr. Leng's revision is not this species but the cupreous form (*aurichalcea* Melsh.) of *biimpressa* Melsh. of which *torosa* Lec. is a synonym.

The bright metallic green specimens are from Hudson's Bay and are in the collection of the British Museum.

This species can only be compared with *subtilis* but *distincta* is a broader insect, with wider prothorax which has always a distinct median line and lateral tubercles; the head is more strongly narrowed and constricted behind the eyes, which are smaller and more prominent; the elytral sculpture is generally also finer and more equal from base to apex; the last dorsal segment of both sexes is emarginate at middle of apex and the antennae are a little stouter.

In Genera Insectorum, family Donacidae, *distincta* is wrongly listed under *Plateumaris*. It is a true *Donacia* resembling the Siberian *obscura splendida* Jacobson closely but the latter has the pubescence below golden-yellow and the last dorsal segment of the female is entire, in the males scarcely emarginate, and the elytral sculpture is a little coarser.

Donacia subtilis Kunze.

Elongate, depressed; color aeneous, cupreous or obscure metallic green; antennae and legs entirely metallic or antennae, tibiae and tarsi more or less reddish at base.

Head not deeply narrowed and constricted behind the eyes, which are large and prominent; median line distinct; posterior tubercles more or less distinct; surface closely punctate, very densely and more finely anteriorly; antennae extending to the middle of elytra or slightly shorter, third joint a little longer than second and both as long as the fourth joint, or very nearly so.

Prothorax about one and one half times as wide at apex as long, sides generally distinctly converging towards base; anterior and basal angles distinct but not prominent; lateral tubercle very feeble or absent; median impressed line generally absent but occasionally present; sculpture variable from sparsely to densely punctate, punctures moderately large, laterally generally coarsely strigate.

Elytra depressed; apex truncate, outer angle generally distinct

but rounded; ante-median impressions distinct; post-median impressions feeble or absent; serial punctures moderately large, finer towards apex; intervals transversely strigate from base to apex, near apex the strigation is finer and denser, frequently the basal part around the scutellum smooth and feebly strigate; in addition there are more or less distinct coarser rugae which extend from interval to interval and which are generally more evident in the anterior impressions.

Body below densely and finely punctate; pubescence white, short and moderately dense; pubescent space near anterior coxae small, intercoxal process of mesosternum slightly less than half of the width of the cavities; posterior femora reaching the apex of the third ventral segment, armed below with a moderate tooth in both sexes. Length: 6–9 mm.

Male: Last dorsal and ventral segments truncate at apex, the latter slightly impressed at middle of apex, the former occasionally feebly emarginate at apex.

Female: Last dorsal segment broadly rounded at apex; last ventral segment somewhat sub-triangular and entire at apex.

N. West Terr.: Carduff, June (Willing).
Alberta: St. Albert, July (Carr).
Manitoba: Aweme, July (Criddle); Winnipeg (Wallis).
Ontario: Ont. Co. (Beyer); "Ont." and "E. Ont." (Entomol. Branch).
Quebec: Rigaud, August (Chagnon).
Massachusetts: Longmeadow, June (Dimmock Biol. Surv.); Agawam, September (Knab); Framingham, June and August (Frost); Wellesley, Sherborn, June (Frost).
Connecticut: Cornwall, July (Chamberlin).
New York: Yaphank, Long Island, June (Engelhardt); White Plains, June (Squire); Pine Island, June (Davis); Lake George, July (Fisher, Biol. Surv.).
New Jersey: Masonville, May (Wenzel); Neshanic, June (Schott); Wenonah, September (Wenzel).
Pennsylvania: Bear Lake (coll. Leng); Hummelstown, July (Knull); Spring Mount, June (Wenzel); Delaware Co., June (Wenzel).
District of Columbia: Woodridge, May (Buchanan, Biol. Surv.); Eastern Branch, August (McAtee, Biol. Surv.); Hills Bridge, August (Engelhardt).
Maryland: Great Falls, August (McAtee, Biol. Surv.); Bladenburg, May (McAtee, Biol. Surv.); Hyattsville, May (Knab).
Virginia: Dyke, July (McAtee, Biol. Surv.).
Georgia: Clayton, July (Davis).

Alabama: Spring Hill, March (Loding).
Ohio: Anglaisia Co., May (Dury).
Kentucky: Clear Creek, July (Engelhardt).
Illinois: Edgebrook, June (Liljeblad); West Pullman (Wolcott).
Michigan: Livingston and Cheboygan Co., June and July (Hatch).
Iowa: Iowa City, May (Wickham); Lake Okoboji, June (Buchanan).
Colorado: Greeley (Wickham).

The host plants of this species are apparently the burr reeds, *Sparganium*. It was collected on this plant by Messrs. Wenzel and Davis and the latter found them feeding on the flowers. Mr. Wenzel noticed dead specimens adhering to this plant in September. At Beaverdam, Wisconsin, specimens were collected in October by Mr. Snyder feeding on goldenrod blooms.

The specimens which Kirby identified as *aequalis* are not *distincta* but *subtilis* as Mr. Arrow informs me, who kindly examined the specimens in the Brit. Museum collection at my request.

This common and well-known species varies a good deal in form, sculpture of prothorax and elytra and also coloration but is generally correctly identified in collections. The only species with which it could be confused is *tuberculifrons* but *subtilis* is a more elongate and more depressed insect with a different prothorax, generally more elongate antennal joints and usually finer elytral sculpture near apex. *D. distincta* is also similar to *subtilis* but the former is more robust with more equal and finer elytral sculpture, wider prothorax which has always a distinct median line, relatively smaller head which is more strongly narrowed behind the eyes, the latter smaller and more prominent and the apex of the last dorsal segment is emarginate in both sexes.

var. FULGENS Lec.

Similar in form and size to typical *subtilis* but generally less elongate; prothorax, especially in the females, often wider and more even above; color metallic green, golden-green or bright cupreous; sculpture of prothorax and elytra denser and coarser and occasionally at about apical fourth with a more or less distinct tubercle-like elevation.

Huds. Bay Terr.: "H. B. T." (Leconte coll.).
Quebec: Montreal Island (Knab coll.).
Minnesota: St. Anthony Park; Ely, September (Kubichek).
Michigan: Cheboygan Co., July (Hatch).
New York: Old Forge, June (N. Y. State Mus.); Saranac Lake (Shoemaker); Cranberry Lake, June (Hatch); Oakfield, June (Notman); Black River, Lowville, June (Notman); Ithaca, June, July (Dietrich).

New Jersey: Newfoundland, July; Masonville, May (Wenzel).
Pennsylvania: Baoba, Pike Co., July (Wenzel).

In some localities both the typical form and the variety occur together with intermediate specimens. In other localities, for instance at Old Forge and Saranac Lake, N. Y., numerous specimens collected there were all typical *fulgens;* moreover, the bright green or golden-green color apparently never occurs in typical *subtilis* and I have for these reasons restored Leconte's *fulgens* as a variety of *subtilis.*

DONACIA TUBERCULIFRONS Schaeffer.

Elongate, moderately depressed; color aeneous, cupreous or rarely dark metallic blue; antennae black, the first four or five joints more or less metallic; legs concolorous.

Head densely punctate, punctures coarser and less numerous posteriorly; feebly constricted behind the eyes, which are moderately large and prominent; median line deeply impressed; posterior tubercles generally prominent; antennae reaching to about the middle of the elytra and as usual slightly shorter in the females, second and third joints short, equal or sub-equal.

Prothorax about as wide at apex as long; sides scarcely converging behind; lateral tubercle more or less distinct; anterior angles distinct; anterior impression more or less distinct; posterior impression generally faint or absent; median impression generally deep, not extending to apex nor base; surface usually sparsely and moderately coarsely punctate, much more densely anteriorly and strigate-rugose laterally.

Elytra at about apical third less strongly depressed than usual; apices truncate, outer angle rounded; anterior impressions distinct; posterior impressions faint or absent; serial punctures moderate, finer towards apex; intervals transversely strigate, strigation generally sparse on the disk but dense at sides and apex, often coarser rugae are also present which extend transversely from interval to interval but they are rather sparse on the disk.

Body below densely and finely punctate and rather densely pubescent with short white hairs, the last four ventral segments generally less densely punctate and rather more sparsely pubescent; pubescent space near anterior coxae rather small; intercoxal process variable in the two sexes; posterior femora armed below with a moderate tooth in both sexes. Length: 6.5–8 mm.

Male: Posterior femora reaching to apex of third ventral segment or slightly below; intercoxal process less than one half the width of the

cavities; last dorsal segment truncate at apex or feebly emarginate; last ventral segment as usual slightly depressed at middle of apex.

Female: Posterior femora reaching the apex of third ventral segment; intercoxal process about half of the width of the cavities or nearly so; last dorsal segment broadly rounded at apex; last ventral segment somewhat sub-triangular.

Manitoba: Selkirk (Wallis); Winnipeg (Wallis).
Ontario: Toronto, E. Ontario (Entomol. Branch).
Quebec: Rigaud (ex Liebeck); St. Johns Co., July (Chagnon).
Michigan: Lake Michigan, Berrien Co., June (Hatch).
Illinois: Palos Park, June (Liljeblad); Beverly Hills, May (Liljeblad); West Pullman, July (Wolcott).
Indiana: Miller, May and July (Liljeblad); Pine, May and June (Wolcott).
Wisconsin: Dane Co., May (Marshall).
Minnesota: Swan Lake, July (Mabbott, Biol. Surv.).
Nebraska: Lincoln (Wickham).
South Dakota: Brookings (Wickham).
Iowa: Lake Okoboji, June (Buchanan, Biol. Surv.).
Utah: Mouth Bear River, June (Wetmore, Biol. Surv.).
New York: Ithaca, May and July (Cornell Univ.); June (Knight).
New Jersey: Camden, March (Cornell Univ.).
Pennsylvania: Essington, Delaware Co., June (Wenzel); Moores, June (Wenzel).
Virginia: Dyke, May (Jackson, Biol. Surv.).
District of Columbia: Washington (Shoemaker, Davis); Eastern Branch, June (Nicolay); Bennings, Licking Banks, June (Wetmore, Biol. Surv.).

This species has been taken on the yellow pond lily (Wenzel and Wolcott), on bulrushes (Liebeck) and on *Sparganium* (Davis).

Donacia tuberculifrons is closely related to *subtilis* and has probably been mixed up with the latter. It is, however, a more convex insect, the elytra at about apical third is less depressed above and dorsally and laterally more rounded, the sculpture of the intervals near apex generally a little coarser; the prothorax is different, more parallel, with the lateral tubercles and impressed median line always distinct and the antennal joints generally stouter.

In the remarks following the original description I stated that the posterior femora reach the apex of the fourth ventral segment or beyond,

which is wrong, in the types and the numerous specimens seen they reach the apex of the third ventral segment.

Donacia vicina Lacordaire.

Moderately elongate and rather strongly depressed; color aeneous or cupreous; antennae reddish, joints at apex black, legs reddish, femora in apical half or more metallic.

Head moderately constricted behind the eyes, which are rather large and prominent; median line deeply impressed; posterior tubercles more or less distinct; surface densely punctate; punctures larger and less dense posteriorly; antennae long, reaching to or beyond the middle of elytra, third joint slightly longer than second, both about as long as the fourth joint.

Prothorax a little wider at apex than long; sides converging behind; lateral tubercle very feeble or absent; anterior angles distinct; median line generally absent; anterior and posterior impressions absent; surface moderately coarsely and not closely punctate, punctures closer in the apical region, laterally strigate-rugose.

Elytra with ante-median and post-median impressions distinct; serial punctures moderate and finer towards apex; intervals smooth and shining on the disk with very few flattened rugae, which are more evident at sides, near apex finely strigate; apices truncate, outer angle distinct but slightly rounded.

Body below densely and finely punctate and densely pubescent with short, white hairs; pubescent spot near anterior coxae moderately large; intercoxal process of mesosternum half of the width of the cavities or very nearly; posterior femora of both sexes reaching the apex of the fourth ventral segment, moderately clavate, at base as wide as at apex and unarmed below in both sexes. Length: 7–8 mm.

Male: Last dorsal segment truncate at apex; last ventral segment as usual slightly depressed at middle of apex.

Female: Differs very little from the male except being larger and a little more robust and the apices of the last ventral and dorsal segments are rounded and covered by the elytra in both sexes.

Alabama: Spring Hill, March (Loding).

Lacordaire's description of *D. vicina* does not at all agree with *palmata* with which the former is placed as synonym. The only specimens which agree in every respect with the description were found in Mr. Loding's material.

The form of prothorax is the same as seen in typical *subtilis* and

compared with this common species it has a wider elytra which is apparently more depressed above, larger eyes, bicolored and in both sexes unarmed posterior femora. *D. assimilis* which has similarly colored unarmed posterior femora is a narrower and a little more convex insect with longer third antennal joint, prothorax generally with a distinct, longitudinal median line and differently formed posterior femora, which is shorter, more strongly clavate and at base distinctly narrower than at apex.

DONACIA LIEBECKI Schaeffer.

Rather short and sub-parallel, depressed; color aeneous or bright cupreous; legs reddish, femora with or without metallic spot; antennae reddish, joints black at apex, occasionally entirely black.

Head relatively and strongly narrowed and constricted below the eyes which are moderately large and prominent; median line deeply impressed; posterior tubercles feeble or absent; surface densely and moderately finely punctate; antennae rather short, not quite reaching to the middle of elytra in the male, shorter in the female, second and third joints small, equal or subequal, fourth shorter than the first joint.

Prothorax slightly wider at apex than long; sides generally feebly converging behind; anterior angles distinct, occasionally slightly projecting; posterior angles feebly prominent; lateral tubercle feeble; median impressed line generally absent but occasionally present; anterior transverse impression absent; posterior impression faint or absent; surface moderately coarsely punctate, punctures more or less transversely confluent.

Elytra with the ante-median and post-median impressions distinct; apices squarely truncate, outer angle distinct but rounded; surface generally rather coarsely rugose at about basal third, towards apex the intervals more finely strigate-rugose; serial punctures relatively large, gradually finer towards apex.

Body below densely and finely punctate and moderately densely pubescent with short, yellowish-white hairs; pubescent space near anterior coxae moderately large; intercoxal process of mesosternum about one third the width of the cavities; hind femora rather feebly clavate, reaching the apex of the third ventral segment in the male, a little shorter in the female, at base slightly narrower than at apex, armed below in both sexes with a small and generally acute tooth. Length: 6–7.5 mm.

Male: Last dorsal segment more or less distinctly emarginate at apex; last ventral segment impressed at middle of apex.

Female: Last dorsal segment more or less distinctly emarginate at apex; last ventral rather short and broadly rounded at apex.

Massachusetts: "Neighborhood of Boston" (Lacordaire); Springfield (Dimmock).

New York: Wading River, Long Island, June (Shoemaker, Schott); Wyandanch, Long Island, June (Davis, Schott, Schaeffer).

New Jersey: Lakehurst, July (Davis, Engelhardt, Woodruff); Malaga, May (Shoemaker), June (Liebeck); Centerton, July (Liebeck); Clayton, June (Wenzel); Pt. Pleasant, July (Schott).

South Carolina: Myrtle Beach, Horry Co., April (Kalmbach, Biol. Surv.).

Kentucky: "Ky." (O. Dietz coll.).

This species is commonly taken in the pine regions of Long Island and New Jersey on the flowers and leaves of the white water lily. At Wyandanch, Long Island, a small number of specimens were taken once by Mr. Davis and myself on the flowers of the white daisy. However, this must be considered exceptional as the adjacent lake had been dredged and the insects not finding their natural food plant turned to the nearest flowers for food, the white daisy, which grows abundantly near the lake. At Wading River, Long Island, I took a few specimens from the flowers of *Carex*. Mr. Wenzel records it from several plants in New Jersey: "At Newfield, May 21, in numbers on the bloom of *Orontium aquaticum* and easily disturbed during the heat of the day when they take to flight and rest on the leaves of the plant. At Bamber, June 9, in the flowers of *Castalia odorata*. At Newfield, June 18, the bloom of *Orontium aquaticum* being over specimens were found in the flowers of *Nymphaea advena*. At Hammonton, July 16, in numbers in the flowers of *Castalia odorata*."

While this species is mostly found on strictly aquatic plants I do not believe that it breeds in these but probably in *Carex*. The species which are known to breed in aquatic plants have the pubescence of the underside denser, finer and shorter than in *liebecki*.

This is the *Donacia pallipes* Lac. wrongly placed as a synonym of *D. aequalis* in our recent list. The name *pallipes*, however, is used previously by Kunze for a European species. *D. liebecki* is closely allied to *megacornis* but is rather more parallel and elongate in form, slightly more depressed, antennae annulate or black and hind femora with a small tooth which is not crenulate at its posterior margin. In form *liebecki* is somewhat like *aequalis* but the latter has a different prothorax, the sculpture of the latter and elytra is never coarse, the intercoxal process of the mesosternum is wider and the head is not strongly narrowed behind the eyes which are also slightly smaller.

DONACIA MEGACORNIS Blatchley.

Rather short and moderately robust; color aeneous or cupreous; legs and antennae generally reddish, rarely the femora with a faint, small, dark cloud.

Head relatively strongly narrowed and constricted behind the eyes, which are prominent and rather large; median line deeply impressed; posterior tubercles feeble; surface densely and finely punctate; antennae scarcely reaching the middle of elytra, joints rather stout, second and third joints small, equal and together about as long as the first joint, fourth joint shorter than the first.

Prothorax about as wide at apex as long; sides more or less parallel behind the lateral tubercle, often diverging towards base; anterior angles distinct, occasionally very obtuse, rarely slightly projecting; basal angles rounded; median line distinct or absent; anterior impression absent; posterior impression sometimes distinct, occasionally feeble or absent; lateral tubercle feeble; surface more or less strigate-rugose caused by confluence of the large punctures.

Elytra with distinct ante-median and post-median impressions, the latter less deep than the former; apices truncate, outer angle distinct but rounded; surface moderately coarsely rugose, often smoother in the scutellar region and more or less distinctly and finely punctate, intervals towards apex transversely strigate-rugose; serial punctures large becoming rapidly smaller towards apex.

Body below densely and finely punctate and moderately densely pubescent with yellow or yellowish-cinereous, short hairs; pubescent space near anterior coxae moderately large; intercoxal process of mesosternum about one third the width of the cavities or slightly less; posterior femora reaching the apex of third ventral segment in the male, shorter in the female, distinctly clavate, at base slightly narrower than at apex and armed below in both sexes with a rather large, triangular tooth, the posterior margin of which is crenulate, which can be plainly seen from an internal view. Length: 6–7 mm.

Male: Last dorsal segment truncate or feebly emarginate at apex; last ventral segment depressed at middle of apex.

Female: Last dorsal segment broadly rounded at apex, sometimes apparently slightly emarginate; last ventral segment narrowly rounded at apex.

Iowa: Iowa City (Wickham).
Indiana: Lake County, May (Blatchley).

Massachusetts; Cambridge (Crotch in coll. Mus. Comp. Zool.); Framingham, July (Frost).

New York: Rockaway Beach, Long Island (Shoemaker); Kingston, July (N. Y. State Mus.); Long Lake, Hamilton Co. (Davis).

New Jersey: Lakehurst (Davis, Engelhardt); Pt. Pleasant, July (Schott); N. Lisbon, June (Liebeck); Anglesea, July (ex Nicolay); Bamber, June, Malaga, May and June, and Hammonton, July (Wenzel).

Mr. Frost has taken this species by "sweeping in meadow" and Mr. Wenzel on several plants as follows:

"At Bamber, N. J., June 9, found in numbers on *Castalia odorata*. Females bore into the heart of flowers where mating takes place, as many as three pairs taken from flowers, no specimens taken from leaves. At Malaga, N. J., June 18, specimens taken from flowers of *Nymphaea advena*. At Hammonton, N. J., July 16, in flowers of *Castalia odorata*."

Mr. Julius Weise changed the name to *megalocera* being of the opinion that a name coined from two languages is not admissible. However, as I am unable to find any rule against this, I restore Mr. Blatchley's name to this species.

Both species *megacornis* and *liebecki* are more closely allied to each other than to any other species. The former, however, is a stouter and a little more convex insect, the elytra more distinctly narrowing to apex and the posterior femora is armed below in both sexes with a rather large, triangular tooth, which is serrulate behind and the antennae are always unicolored red, at least in all the specimens which I have seen. *D. aequalis* is also a rather short insect but cannot be confused with *megacornis*. The head in the latter is strongly narrowed behind the eyes, the prothorax has scarcely any visible lateral tubercles and no anterior impression, the elytra are more converging behind and the surface is much more coarsely sculptured.

Donacia aequalis Say.

Rather short, oblong, depressed; color aeneous, cupreous, metallic green, blue or black; the last, or the last two or three ventral segments more or less reddish; antennae entirely black or the joints more or less red at base; legs reddish, femora at apical half metallic, tibiae frequently towards apex entirely metallic.

Head scarcely narrowed and feebly constricted behind the eyes, which are moderately large; median impression moderate; posterior tubercles absent; surface densely and moderately finely punctate; antennae extending nearly to the middle of the elytra in the male and

as usual a little shorter in the female; second and third joints small, equal, together about as long or slightly longer than the first joint.

Prothorax about as wide at apex as long; sides more or less distinctly converging behind the lateral tubercle, anterior angles distinct, generally not prominent; posterior angles prominent; lateral tubercle distinct and separated from the disk by a more or less deeply impressed, arcuate groove; median line generally distinct and fine; anterior transverse impression distinct and limited behind by an obtuse, oblique ridge on each side of middle; surface finely punctate, generally the punctures are closely placed and more or less transversely or obliquely confluent, producing a strigate-rugose sculpture, more evident at sides and base.

Elytra sub-parallel; ante-median and post-median impressions generally deep; apices truncate, outer angle distinct but rounded; serial punctures moderate and gradually smaller towards apex; intervals on the disk generally nearly smooth, shining, with scarcely any rugae; laterally usually more or less rugose.

Body below closely and finely punctate; pubescence short, cinereous and not dense; pubescent space near anterior coxae small; intercoxal process of mesosternum about half of the width of the cavities, or very nearly so; posterior femora moderately strongly clavate, at base distinctly narrower than at apex, armed below in both sexes with a rather small tooth. Length: 5–7 mm.

Male: Posterior femora reaching the apex of the fourth ventral segment; last dorsal segment truncate at apex; last ventral segment with a feeble impression at middle of apex; first ventral segment occasionally more or less distinctly depressed at middle.

Female: Posterior femora reaching the apex of the third ventral segment; last dorsal and ventral segments rounded at apex.

Quebec: Rigaud, July and August, and St. Eustache, August (Ouellet); Rouville, July (Knab coll.).
Ontario: "E. Ont." (Entomol. Branch).
Michigan: Oakland Co., June (Hatch).
Wisconsin: Dane Co., June (Marshall).
Illinois: Palos Park, June (Liljeblad); Cook Co., May (Blackwalder).
Maine: Wales, Monmouth and Paris, June (Frost).
Massachusetts: Long Meadow, June (Dimmock, Biol. Surv.).
Rhode Island: Providence, Cranston, May (Nylen ex Liljeblad).
New York: Clove Valley, Staten Island, July (Leng); Lowville, Lewis Co., June (Notman).
New Jersey: Wenona, May (Wenzel); Upper Montclair (Nicolay).

Pennsylvania: Frankford, June (Schmidt); Essington, June (Wenzel); Baoba, July (Wenzel); Easton, June (Frankenfield).

Virginia: Great Falls, May (Chapin, Biol. Surv.); Dyke, July (Jackson, Biol. Surv.); Fairfax Co., June (Nicolay).

Maryland: Great Falls, May (McAtee, Biol. Surv.); Bettsville, June (McAtee, Biol. Surv.).

District of Columbia: Washington, June (Nicolay, Davis); Eastern Branch, December, January, February, April (McAtee, Biol. Surv.), June (Nicolay); Woodridge, May (Buchanan, Biol. Surv.); Washington, October (Chapin, Barber, Notman).

Ohio: Cincinnati (Dury).

Kansas: "Kans." (coll. Wickham).

Iowa: Fort Madison (Wickham); Iowa City, June (Buchanan, Biol. Surv.).

Nebraska: "Neb." (Ulke).

Minnesota: St. Anthony Park, July (Biol. Surv.); Ramsay Co. (Minn. Univ.).

Recorded on rushes and sedges on marshy ground (Hamilton), on leaves of arrow-head, numerous and in copulation (Liebeck) and found in numbers on Sparganiaceae and *Sagittaria* growing together at Wenonah, N. J., and at Essington and Pike Co., Pa., on *Sagittaria* (Wenzel).

D. aequalis should be easily recognizable by its rather short form, head scarcely narrowed behind the eyes, prothorax finely punctate and finely rugose at sides and base; lateral tubercles rather prominent and distinctly separated from the disk, anterior impression distinct and generally the elytral impressions deep. In general form it resembles *D. pusilla* Say of the sub-genus *Plateumaris*.

In Genera Insectorum this species is also wrongly listed under *Plateumaris*.

DONACIA DISSIMILIS new species.

Female (Type): Rather robust, subconvex; color of upper surface metallic brown; antennae pale, joints more or less black at apex; legs pale, posterior femora with a feeble, dark cloud near apex; body beneath metallic green, the last four ventral segments more or less reddish.

Head not constricted behind the eyes, which are rather small; posterior tubercles absent; finely densely rugose; median impressed line fine; antennae not quite reaching the middle of elytra, third joint distinctly longer than second, about as long as the first joint.

Prothorax about as long as wide at apex; sides feebly convergent towards base; apical angles distinct but not prominent; lateral tubercle

not prominent, small, separated from the disk by a rather broad, oblique impression; transverse apical impression moderate, limited behind by an oblique, obtuse ridge; median impression fine; ante-basal impression faint; surface densely and finely rugose, scarcely shining, except at base above the scutellum, where the sculpture is rather strigate.

Elytra about two and one half times as wide as the prothorax at base; sides almost parallel, feebly narrowing to about apical fourth, thence more strongly arcuate towards apices, the latter truncate, with the outer angle rounded; strial punctures rather large, gradually smaller towards apex; surface rather coarsely and densely rugose, the ante-median and post-median impressions absent or exceedingly faint.

Body beneath densely finely punctate, pubescence pale yellowish, short and rather close but permitting the punctuation and surface color to be seen; the usual pubescent space near the anterior coxae is faint and scarcely visible; the intercoxal process of the mesosternum is peculiar in being triangular, but possibly accidental; posterior femora extending slightly beyond the apex of the fourth ventral segment, rather robust and feebly clavate, unarmed below; last ventral and dorsal segments broadly rounded at apex. Length: 8 mm.

Florida.

Male (Allotype): Color as in the female but only the last three ventral segments reddish; it differs from that sex in being smaller and less robust, with longer antennae which reach to about the middle of elytra; the prothorax is more distinctly converging towards base; the last dorsal segment is broadly rounded at apex; the last ventral segment truncate at apex with scarcely a trace of the usual median impression; the mesosternal process is moderate and not quite half as wide at middle as the middle coxal cavities; the posterior femora are armed below with a moderate, acute tooth. Length: 5.75 mm.

Dunedin, Florida (April 16).

The female I owe to the kindness of Mr. Charles Liebeck; the male was collected by Prof. Blatchley and remains in his collection.

This is a peculiar species, the female can scarcely be compared in form with any *Donacia* known to me, the male looks somewhat like *fulvipes*.

The triangular or subtriangular mesosternal intercoxal process of the female is possibly accidental as it is apparently normal in the male, though somewhat obscured by the dense pubescence.

DONACIA RUFA Say.

Oblong and rather short and moderately depressed; color entirely reddish above and below with or without metallic tint to aeneous or cupreous above and partly below, sometimes the entire underside metallic with only the last ventral segment reddish; legs reddish, femora often more or less metallic near apex; antennae reddish varying to almost entirely black with faint metallic tint.

Head rather feebly narrowed and constricted behind the eyes, which are small and feebly prominent; median impressed line fine; posterior tubercles faint or absent; ocular orbits occasionally faint and indistinct; surface moderately finely but densely punctate; antennae reaching far beyond the middle of the elytra in the male, to about middle in the female, third joint longer than second and about as long or slightly longer than the first, fourth joint much longer than the first.

Prothorax about one half wider at apex than long; sides distinctly converging towards base, occasionally strongly sinuate; anterior angles distinct, thickened, occasionally prominent; posterior angles distinct and generally feebly prominent; lateral tubercle distinct and rather prominent, separated from the disk by a more or less deep, arcuate impression; anterior impression more or less distinct, limited behind on each side of median line by an oblique, rather faint, obtuse ridge; posterior impression faint or absent; median line fine, extending from apex to base; surface generally dull or feebly shining, very finely rugulose with a few shallow punctures scattered over the disk.

Elytra shining; apices truncate, outer angle rounded; serial punctures moderate and smaller towards apex; intervals generally finely rugose anteriorly, posteriorly towards apex more coarsely rugose, larger rugae extending from interval to interval but rather sparse; ante-median and post-median impressions feeble, the former often more distinct.

Body below densely and finely punctate, pubescence yellowish-cinereous and not very dense; pubescent space near anterior coxae small; intercoxal process of the mesosternum less than half as wide as the cavities; posterior femora rather strongly clavate, much narrower at base than at apex, extending to or nearly to the apex of elytra in the male, shorter in the female; armature below different in the two sexes. Length: 5.5–7 mm.

Male: Posterior femora below with a small posterior tooth and more internally a small denticle anteriorly, which is often very indistinct and not visible from the outside; last dorsal segment truncate or very feebly emarginate at apex; last ventral segment slightly depressed at middle of apex.

Female: Posterior femora unarmed below; last dorsal segment truncate at apex; last ventral segment rounded at apex.

Massachusetts: Springfield (Knab); Framingham, July (Frost).
Connecticut: Berlin (Britton); New Haven (Butrick); Meriden (Zappe).
New York: Maspeth, Long Island, August (Schott); Clove Valley, Staten Island, July (Davis, Leng); White Plains, July (Squire); Voorheesville, July (Leonard).
New Jersey: Westville and Camden (Castle); Hammonton (Hubbard and Schwarz coll.); Malaga, June (Wenzel); Lakehurst, July (Davis); Newark (Bischoff).
Pennsylvania: Angora (Castle); Mt. Airy (Laurent), Baoba, Pike Co., July (Wenzel).
Maryland: "Md." (Lugger).
District of Columbia: Rock Creek, Washington, May, June (Nat. Mus.); Eastern Branch, June (Nicolay).

The host plant of this species is *Sagittaria* (Leng, Schott and Wenzel).

Donacia rufa Say is without doubt the same as *D. tuberculata* Lac. The species identified at present as *rufa* does not agree with Say's description at all. "Body totally dull rufous, with metallic gloss, particularly on the elytra; head dusky, almost opaque, etc." does not apply to any specimen of the common insect known as *rufa* at present. There is also no mention of a femoral tooth in Say's description but as he noticed the femoral tooth in his other five species, even of *pusilla*, which has a small tooth, I am confident that Say's specimen had the hind femora unarmed. The *rufa* of Mr. Leng's revision has a large, triangular tooth on the hind femora and would not have been overlooked by Say, in fact, is described as a "broad prominent angle" in his *metallica* which is the same species as the one wrongly identified as *rufa* at present. The females of *tuberculata* have no femoral tooth and as the rest of Say's description of *rufa* agrees very well with certain rufous specimens of *tuberculata* I am quite confident that my identification of Say's *rufa* is correct. Moreover, the description does not fit any other North American *Donacia*.

The head is feebly narrowed behind the eyes, the neck wide, eyes small, the usually very distinct ocular orbits are here generally obsolete, the prothorax with distinct lateral tubercles, surface dull or feebly shining with fine rugulose sculpture and scarcely any punctures, the male femora armed below with a small tooth and a denticle in front of the latter and the female femora unarmed will help in recognizing this peculiar species.

In *subtilis* and allies the sculpture of the elytral intervals is generally much finer and denser at apex, in *rufa* it is coarser.

Donacia pubicollis Suffrian.

Plate V, fig. 11.

Rather narrow, elongate, depressed; color aeneous or cupreous, last ventral segment and the penultimate occasionally partly reddish; antennae reddish, joints two to five or six largely black above or all the joints more or less dark or annulated; legs pale reddish.

Head moderately narrowed and constricted behind the eyes, which are relatively very large and prominent; posterior tubercles absent; surface densely punctate; antennae extending far beyond the middle of elytra in the male, to about the middle in the female, third joint much longer than the second and about equal in length to the first joint in the female but slightly longer in the male.

Prothorax about as wide at apex as long; at base narrower than at apex; sides more or less distinctly arcuate below the lateral tubercle; anterior angles thickened, more or less oblique, posterior angles distinct, prominent; lateral tubercle more or less distinct, flattened, separated from the disk by an arcuate impression; anterior and posterior impressions feeble or absent; median impressed line fine, entire from apex to base; surface densely and moderately finely punctate and sparsely pubescent with very short, cinereous hairs.

Elytra very elongate, longer than twice the basal width but not quite three times as long as wide at base; apices rounded; impressions absent; serial punctures rather coarse, scarcely finer towards apex; intervals with more or less distinct coarse rugae extending from interval to interval, at apex the sculpture is somewhat coarsely and densely rugose.

Body below densely and finely punctate and very densely and finely pubescent with short, white hairs obscuring entirely the surface color; side pieces of prosternum entirely but sparsely pubescent with longer hairs; posterior femora unarmed below in both sexes, extending to or beyond apex of third ventral segment; tarsal joints rather elongate; intercoxal process of mesosternum narrow and distinctly narrower than half the width of the cavities. Length: 8–10 mm.

Male: Last dorsal segment truncate at apex; last ventral segment feebly depressed at middle of apex.

Female: Last dorsal segment truncate at apex; last ventral segment rounded at apex.

Ontario: "E. Ont." (Ent. Branch).
Wisconsin: Dane Co., April (Marshall).
Indiana: Lake Co., May (Blatchley); Pine, May (Wolcott).
Illinois: "Ill." in several collections.
Minnesota: Lake Itasca, June (Graham in coll. Univ. Minn.).
Dakota: "Dak." (Hubbard and Schwarz coll.).

This species is reported by Prof. Blatchley to occur on water lilies.

The unusually long elytra, pubescent prothorax, unarmed posterior femora, long antennal joints and tarsi will separate this species from any of the North American Donacias.

It is closely related to the European *clavipes*. The form of head, antennae, prothorax, elytra and legs are almost the same as in the European species except that the latter is more brightly colored with prothorax not pubescent but shining and more or less transversely strigate.

Subgenus Poecilocera Schaeffer.

Only one species is referable here which differs more from the true Donacias than it does from the species of the subgenus *Plateumaris*. From the species of the latter subgenus it differs principally by the head gradually narrowing behind the eyes and not visibly constricted, absence of tempora, elytral apices truncate or emarginate, different armature of hind femora and tibiae and vaginal plates of female similar to those of the subgenus Donacia.

Donacia harrisi Leconte.

Plate V, figs. 3 and 16.

Elongate, feebly depressed; color dark aeneous or cupreous above, very rarely metallic green or blue; antennae entirely rufous, sometimes annulate or almost entirely dark metallic; legs rufous, femora in about apical half or more metallic; body below entirely metallic, occasionally abdomen reddish with or without slight metallic tint.

Head very feebly narrowed and not constricted behind, eyes small and scarcely prominent; median line fine and deep; ocular orbits absent; posterior tubercles absent; surface densely and moderately finely punctate; antennae extending slightly beyond the middle of elytra in the male, shorter in the female, third joint very long, longer than the fourth joint.

Prothorax usually as wide at apex as long; sides more or less distinctly converging behind the lateral tubercle; anterior angles distinct,

occasionally feebly prominent; posterior angles more or less prominent; lateral tubercles distinct but rather feebly prominent; median line fine, often very indistinct by the crowded surface sculpture; anterior impression often indistinct; posterior impression generally distinct; surface more or less densely, transversely and obliquely strigate, punctures scarcely visible except in the posterior impression in which they are always distinct and moderately large.

Elytra truncate or emarginate at apex; impressions very feeble or absent; serial punctures moderate, finer towards apex; sutural margin sinuate near apex; surface with rather long, coarse, transverse rugae which extend from interval to interval.

Body below densely and moderately finely punctate; pubescence short, but not dense; first ventral segment about as long as the three following joints in both sexes; pubescent space near anterior coxae small; intercoxal process of mesosternum very small, less than one fourth the width of the cavities; legs differ in the two sexes. Length: 7.5–9.25 mm.

Male: Posterior femora very robust, oblong, extending to apex of fourth ventral segment or slightly beyond, armed below with a small acute posterior tooth, internally and slightly in advance of the latter a still smaller tooth and along the lower edge a number of more or less distinct denticles; posterior tibiae slightly arcuate, more or less distinctly angulate internally at about apical third, inner edge serrulate, which is more distinct below the angulation than above (plate V, fig. 3); last dorsal segment emarginate at apex; last ventral segment depressed at middle of apex.

Female: Posterior femora extending to the apex of the fourth ventral segment, or very nearly so, robust but slightly more slender than in the male, unarmed below, internal edge feebly asperate; posterior tibiae nearly straight, not angulate below but along the inner edge distinctly serrulate; last dorsal segment more or less distinctly emarginate at apex; last ventral segment arcuate-truncate at apex.

Mr. Frost takes this species on *Carex*.

Michigan: Detroit (Hubbard and Schwarz).
Massachusetts: Sherborn, May, June and July (Frost); Framingham, June (Frost); Holyoke, June (Knab coll.).
Connecticut: "Ct." (Leng coll.).
New York: "near Brooklyn," July (Shoemaker); McLean, July (Cornell Univ.).
New Jersey: Newfoundland (Leng); Ramsey, May (Davis).
Pennsylvania: Hamden (Nat. Mus.); "Pa." (Leconte).

The angulation of the posterior tibiae of the males is more plainly seen from an internal view and is often very indistinct in small specimens.

Metallic blue or green specimens are apparently very rare, I have seen only one specimen of each color, collected by Mr. C. A. Frost.

This rather aberrant species can scarcely be compared with any North American *Donacia*. In some way the males are not unlike the females of the Siberian *Donacia* (*Sominella*) *macrocnemia* Fisch. The head is very similar as in the latter species which, however, has the ocular orbits somewhat distinct. The prothorax is similar but is in *macrocnemia* shorter, with more strongly rounded sides anteriorly, and the strigate-rugose sculpture is coarser. The sculpture of elytra consists of the same long, coarse, transverse rugae as in *harrisi*, though denser and coarser, but the sutural margin is not distinctly sinuate near apex in *macrocnemia*. The internal angulation and serration of the posterior tibiae of the males of *harrisi* are the same as in the females of *macrocnemia* but stronger in the latter.

Subgenus Plateumaris Thomson.

The species of this subgenus are more alike in general form and structure and armature of the posterior femora than the species of the subgenus *Donacia* and the two sexes do not differ as much in form and armature of hind femora as certain species of the latter. The head is always more or less abruptly narrowed and constricted behind the eyes, which latter are always small; the tempora more or less distinct; the ocular orbits are absent; the mandibles are generally larger but occasionally as small as in certain species of true Donacias; the elytra are generally more convex and parallel and usually rounded at tip and the sutural margin is sinuate near apex; the intercoxal process of the mesosternum is always narrow; the femora are generally armed below with one tooth in both sexes, though in some species only the females, in others both sexes, have unarmed posterior femora. The first ventral segment is rather short, about as long as the three following joints together.

In nearly all the species the pubescent space near the anterior coxae, always present in the species of the subgenus *Donacia*, is here absent with the exception of *diversa*, which has a small, more or less distinct, pubescent space. The vaginal plates are apparently of a more hardy texture and the upper plate is generally shorter than the lower, which latter is usually triangularly narrowed apically and more or less acutely pointed at apex, the sides anteriorly more or less serrate and are ap-

parently used as a tool to make an opening in stems of plants in which to deposit the eggs.[8]

Key to males and females of the species of Plateumaris.

1. Hind femora uniformly metallic with a moderate or large tooth ..... 2.
   Hind femora bicolored or entirely red, tooth variable ..... 4.
2. Side pieces of prosternum coarsely strigate, last dorsal segment at apex truncate, feebly emarginate or rounded ..... 3.
   Side pieces of prosternum at apical half rugose, not or feebly strigate, basal half rather finely strigate, last dorsal segment distinctly and generally deeply emarginate at apex ..... *emarginata* Kirby.
3. Hind femora sparsely punctate, punctures separated by twice their own diameter or more, strongly clavate, armed below with a large, triangular tooth ..... *nitida* Germ.
   Hind femora closely punctate, punctures separated by their own diameter or less, rather feebly clavate, armed below with a moderate tooth ..... *notmani* n. sp.
4. Tooth of hind femora very small or absent ..... 10.
   Tooth of hind femora moderate or large ..... 5.
5. Side pieces of prosternum relatively coarsely strigate-rugose or coarsely vermiculate-rugose ..... 6.
   Side pieces of prosternum rather finely rugose, especially in apical half, basal half occasionally strigate-rugose, but not coarsely and generally indistinctly so; last dorsal segment emarginate at apex ..... 9.
6. Side pieces of prosternum coarsely strigate and without any indication of a pubescent spot near anterior coxae; last dorsal segment at apex truncate or rounded ..... 7.
   Side pieces of prosternum coarsely and rather vermiculate-rugose with a more or less distinct pubescent spot near anterior coxae; last dorsal segment emarginate ..... 8.
7. Longitudinal median impression deep and rather wide but obscured by the dense sculpture in var. *lodingi;* lateral thoracic tubercle generally well separated from the disk and rugose; hind femora strongly incrassate; at base generally narrower than at apex; legs as usual, second joint of hind tarsi as long as wide at apex (plate V, fig. 5) ..... *flavipes* Kirby.
   Longitudinal median impression of prothorax generally narrower, sometimes feeble or absent; lateral thoracic tubercle poorly separated from the disk and smooth and shining; legs short and stout; hind femora robust, somewhat elliptical in shape, at base not narrower than at apex, second joint of hind tarsi wider at apex than long (plate V, fig. 6) ..... *sulcicollis* Lac.
8. Hind femora robust, gradually widening towards the sub-apical

[8] The vaginal plates of the female of the European *consimilis* are apparently equal in size and not triangularly narrowed apically, but are wide and broadly rounded at apex.

tooth, at base as wide or wider than at apex (plate V, fig. 7); prothorax coarsely rugose, lateral tubercles rather indistinct; median line absent or very faint ..... *diversa* n. sp.

9. Hind femora narrower at base than at apex and moderately strongly incrassate towards the sub-apical tooth; prothorax shining and densely rugose, not alutaceous; intervals of elytra more or less densely punctate ..... *fulvipes* Lac.

Hind femora moderately robust, at base as wide or wider than at apex and gradually widening to the sub-apical tooth (plate V, fig. 8); intervals of elytra scarcely punctate; prothorax generally alutaceous and feebly shining, surface punctate or punctate-rugose, the punctures relatively shallower than usual, when densely punctate there is generally a space on each side near median line more sparsely punctate, showing the alutaceous sculpture ..... *germari* Mann.

10. Side pieces of prosternum finely rugose, at least in anterior half, posteriorly more or less distinctly finely strigate-rugose . 11.

Side pieces of prosternum relatively coarsely strigate, at least posteriorly, anteriorly often strigate-rugose but then never finely ..... 13.

11. Prothorax punctate, punctures rather fine, sometimes a few larger punctures intermixed, occasionally partly rugose through confluence of punctures but never entirely rugose; form more convex and without elytral indentations ..... *metallica* Ahr.

Prothorax distinctly rugose with at most only a few punctures on the disk; form less convex and with more or less distinct elytral indentations ..... 12.

12. Lateral margin of elytra from a postero-lateral view generally evenly acute from base to apex; form shorter with usually moderately deeply impressed elytral indentations; antennae rather stout, second and third joints small, equal or subequal, outer joints stouter ..... *pusilla* Say.

Lateral margin of elytra acute at most in not quite basal half and then more or less distinctly interrupted; form elongate; elytral indentations more feebly impressed; antennae elongate, third joint longer than second, outer joints slender ..... *wallisi* n. sp.

13. Elytra without transverse, coarse rugae, intervals vermiculate-rugose; prothorax finely rugulose with moderately large punctures ..... *vermiculata* n. sp.

Elytra with more or less distinct coarse rugae, intervals punctate not vermiculate-rugose ..... 14.

14. Prothorax apparently longer than usual, very finely rugose or very finely strigate-rugose, with or without moderately large punctures; lateral tubercle rather elongate; antennal joints four to eleven elongate ..... *longicollis* n. sp.

Prothorax as usual, rather short and less finely strigate-rugose, with large or small punctures; lateral tubercles not elongate; antennal joints shorter and nearly as in *pusilla* ..... 15.

15. Prothorax with rather coarse punctures which are partly more or less confluent, between the punctures the surface more or less rugose; femora and tibiae more red than metallic ..... *neomexicana* n. sp.
Prothorax more or less distinctly strigate-rugose with or without punctures, which, when present, are always fine; legs more metallic than red ..... *dubia* n. sp.

Descriptions of Species.[9]

Donacia sulcicollis Lacordaire.

Plate V, figs. 6 and 17.

Moderately elongate; color generally rufo-cupreous, occasionally metallic green, rarely aeneous or purple; antennae and legs always entirely rufous; below entirely metallic with the last ventral segment more or less and apex of all segments reddish or metallic with one or more of the ventral segments reddish.

Head rather feebly prolonged, squarely truncate and distinctly constricted behind the eyes, which are prominent; surface shining, scarcely pubescent, moderately coarsely and densely punctate; antennae short, not extending quite to the middle of elytra, second and third joints short, equal or subequal, frequently the third joint nearly as long as the fourth, the latter scarcely as long as the first joint.

Prothorax as wide at apex as long or slightly longer; anterior angles distinct, occasionally more or less distinctly prominent; basal angles distinct, at most feebly prominent; lateral tubercle large, smooth, impunctate and feebly convex, generally separated from the disk by an arcuate, feeble impression, which is usually closely punctate; surface shining, sparsely punctate, occasionally a few small punctures are intermixed with the larger ones; anterior impression absent; posterior transverse impression very distinct; median line deeply impressed, moderately wide but occasionally faint or nearly absent.

Elytra with ante-median impression distinct; post-median impression usually absent; serial punctures moderate, slightly finer towards apex; surface shining, generally smooth with at most a few transverse rugae, these latter occasionally a little more numerous in a specimen; intervals smooth or with very fine punctures especially in the basal region.

Body below with moderate punctures which are generally well separated from each other by their own diameter, those of the two last

[9] The measurements are taken from the apical margin of prothorax to the apex of elytra. Only localities are recorded from which specimens have been seen.

ventral segments smaller and denser; pubescence very short and inconspicuous; posterior femora in both sexes short, robust, somewhat elliptical, armed below with a large, triangular tooth; second joint of hind tarsi short, distinctly wider at apex than long. Length: 6–8 mm.

Male: First ventral segment more or less deeply impressed at middle, last ventral segment rather feebly depressed at middle of apex; last dorsal truncate or arcuate-truncate at apex.

Female: Last ventral and dorsal segments broadly rounded at apex. Upper vaginal plate similar in shape to an arrowhead.

Quebec: Montreal Island (Knab coll.); Mt. St. Hilaire (Knab coll.).
Ontario: Port Hope (Bethune in coll. Wickham); W. Ontario and Toronto (Entomol. Branch).
Iowa: Iowa City (Wickham).
Michigan: Washtenaw Co., May (Hatch, Hubbell); Detroit (Hubbard and Schwarz).
Indiana: "Throughout the State; rather scarce. April–October" (Blatchley).
Wisconsin: Bayfield (Wickham).
New Hampshire: Hampton (Shaw in coll. Wickham); Mason, May (Frost); Mt. Washington (Nicolay).
Maine: Cumberland (Nicolay); Eastern Machias (Fenyes); Wales, June (Frost); Monmouth, June, October sifting (Frost).
Massachusetts: Springfield and Chicopee, June (Knab); Watertown, June (Sperry, Biol. Surv.); Southboro, May (Frost); Hopkinton, June (Frost); Sherborn, Nov. (Frost, sifting); Framingham, May, June (Frost).
Connecticut; Rainbow, May (Walden).
New York: Catskill Mts. (Pearsall); Keene Valley, May, June and July (Notman); White Plains, June (Squire); Ramapo (Schaeffer); Ithaca, May (Dietrich); Freeville, June (Dietrich); Suffern, June (Schaeffer); Portage, May (Knight).
New Jersey: Newfoundland, May (Davis); Ramsey, May (Davis).
Pennsylvania: Watertank, May (Kirk); Cresco, June (Kirk); North East, October (Cushman).
Delaware; Seaford, June (Davis).
Ohio; Cincinnati (Dury).

This species has been found on *Caltha palustris* and *Ranunculus acris* by Mr. Davis; on *Carex stricta* and in coitu on flowers of *Prunus* by Mr. Frost; on marsh grass on a hillside by Dr. Hamilton and Prof. Blatchley reports its occurrence on leaves and about roots of skunk cabbage.

This is what has been wrongly identified as *rufa* Say, but the latter is, as shown previously, the same as *tuberculata* Lac.

D. sulcicollis is a rather short, robust insect with shining and feebly punctate prothorax, generally with rather large but feebly distinct lateral tubercles, which are smooth and shining; the legs are relatively short with strongly incrassate posterior femora, which are nearly elliptical in shape, at base and at apex of about equal width, the second joints of hind tarsi wider than long and the color of legs and antennae always rufous.

The anterior part of the lower vaginal plate of the females, shaped like an arrowhead, is peculiar to this species and *diversa*.

Donacia flavipes Kirby.

Plate V, fig. 5.

Elongate; color generally reddish-cupreous, occasionally aeneous, metallic green or purple; legs and antennae usually entirely rufous but sometimes antennae annulate and femora bicolored; below entirely metallic or the last ventral more or less reddish.

Head strongly constricted a little below the eyes, which are prominent; median line often deep and rather wide; surface shining, feebly pubescent, densely punctate with moderate punctures; antennae generally short, extending scarcely to the middle of elytra in typical specimens, longer in the varieties described below, second and third joints usually small, subequal, fourth scarcely as long as the first joint, except in the varieties.

Prothorax about as wide at apex as long; anterior angles distinct, not or more or less projecting; basal angles feebly prominent; lateral tubercle rather large, convex and generally punctate, separated from the disk by an arcuate, densely sculptured impression; median line deep and rather wide, except in one of the varieties; anterior impression absent; posterior impression very distinct; sides feebly arcuate below the lateral tubercle and slightly narrower towards base; surface more or less shining, rather finely punctate, punctures frequently transversely confluent, forming a more or less dense, strigate-rugose sculpture.

Elytra generally shining in the typical form, with the dorsal impressions faint, the post-median often absent; serial punctures moderate, scarcely finer towards apex; generally with a few coarse transverse rugae; intervals usually smooth, rarely with fine punctures.

Body below rather closely but not densely punctate, punctures

denser and finer on the last ventral segment; pubescence whitish or yellowish, very short and rather sparse; posterior femora extending to about the apex of the third ventral segment in the male, shorter in the female, rather strongly incrassate, at apex wider than at base, armed below in both sexes with a large triangular acute tooth, occasionally in one of the varieties the tooth is wide but shorter and obtuse; second joint of hind tarsi about as long as wide at apex. Length: 6–8 mm.

Male: First ventral segment more or less deeply impressed at middle, last ventral segment feebly depressed at middle of apex; last dorsal segment truncate at apex.

Female: Last ventral and dorsal segments broadly rounded at apex; lower vaginal plate similar in shape to *emarginata*.

British Columbia: "Brit. Col." (Entomol. Branch); Glacier, June (Hubbard and Schwarz).

Alberta: Wapemum, July (Carr).

Ontario: Trenton (Evans, E. B.); Hastings (Evans, E. B.); Ottawa (Wickham coll.).

Quebec: Montreal (Entomol. Branch and coll. Knab); Mt. St. Hilaire (Knab coll.); St. Johns Co., July (Chagnon).

Michigan: Douglas Lake, Cheboygan Co., July (Hatch); Washtenaw Co., June (Hubbell); Wayne Co., May (Frankenfield); Ann Arbor; Detroit, May, and Marquette (Hubbard and Schwarz).

Maine: Paris, June (Frost).

Massachusetts: Long Meadow, June (Dimmock Biol. Surv.); Medford, June (Knab); North Hampton, June (Knab); Framingham and Bedford, June (Frost).

Connecticut: Canaan (Zappe); Wallingford (Britton).

New York: Rochester (Wendt, Moore); Tivoli, May (Notman); White-Hall, October (Notman); Sodus Point, June (Notman); Saranac Lake, September (Shoemaker); Staten Island, June (Davis); Bronx Park (Davis); Mystic, Long Island (Murphy); Bellport, Long Island, June (Nicolay); Far Rockaway, Long Island (Johnson).

Pennsylvania: Starlight, June (Shoemaker); Easton, June (Frankenfield).

Virginia: Dyke, May (Jackson Biol. Surv.).

District of Columbia: Washington (Hubbard and Schwarz); Eastern Branch, February, March, April, June (McAtee and Kubichek, Knab).

Ohio: Cincinnati (Brit. Mus. Nat. Hist.).

Minnesota: "Minn." (Minn. Univ.).

Iowa: Iowa City (Wickham).

Nebraska: "Neb." (coll. Marshall).

This species is taken by Messrs. Davis and Liebeck on *Peltandra* and on *Pyrus arbutifolia* by Dr. Britton. Prof. Blatchley finds it common on reeds, rushes and *Peltandra*.

The following two varieties are recognized:

var. SHOEMAKERI new variety.

Similar to typical *flavipes* but smaller and narrower, antennal joints longer and generally bicolored, or entirely black, occasionally entirely red; posterior femora usually bicolored, with the tooth sometimes rather short and blunt; specimens, however, occur with entirely reddish femora; the elytra, besides the more or less distinct larger transverse rugae, have the intervals, especially in the males, more or less distinctly rugulose. Length: 5.5–7.5 mm.

New York: Bronx Park, June (Davis); Iona Island, May (Schott); Rockaway Beach, Long Island, June (Schott).

New Jersey: Malaga, June (Shoemaker); Wenona, May (Wenzel); Centerton, June (Liebeck); Pt. Pleasant, July (Schott); Masonville, May (Wenzel).

District of Columbia: Washington, October (Chapin, Barber and Notman, sifting); November (Hubbard and Schwarz); Eastern Branch, December (McAtee in old leaves).

Virginia: Dyke, May (Johnson).

Found sweeping various grasses and *Sagittaria* growing together by Mr. Wenzel.

The type is a specimen from Malaga, N. J., collected by Mr. Shoemaker from whom I received the first specimens of this form and which I named after him in recognition of the interest he had taken in Donacias during my investigations. Paratypes in the National Museum. The specimens from southern New Jersey, Washington and Virginia, especially the males, look quite distinct from the typically northern specimens, however, among the few females are one or two which are rather intermediate.

var. LODINGI new variety.

This form is more elongate than the var. *shoemakeri*, the elytra slightly more depressed and generally duller, caused by the denser sculpture of the intervals; the prothorax also is more densely rugose obscuring the distinctness of the lateral tubercles and sharpness of the median line and the antennal joints in the few specimens seen are either annulate or entirely black and the femora bicolored. Length: 7–8 mm.

Alabama: Spring Hill, March (Loding).

The var. *lodingi* is very distinct from typical *flavipes* in its narrower, more elongate and less convex form, longer antennal joints, very dense rugose sculpture of prothorax obscuring the distinctness of the lateral tubercles and median line, elytral intervals rather densely and finely punctate; the dense sculpture of the prothorax and elytra gives them a rather dull aspect. However, the var. *shoemakeri* bridges over some of these differences.

From the species with strongly clavate hind femora armed below with a large triangular tooth *flavipes* will be known by its rufous or bicolored hind femora and deep and rather wide median groove of prothorax. Typical *flavipes* with rufous antennae and legs are distinguished from *sulcicollis* which always have reddish antennae and legs by being more elongate in form, lateral tubercle of prothorax convex, punctate, not smooth, the rather wide median line of prothorax, the posterior femora distinctly narrower at base than apex and the second hind tarsal joint not transverse but as long as wide at apex (plate V, fig. 5). The varieties could be confused with *fulvipes*, which also has generally a relatively large tooth, and remarks concerning the differences will be found under that species.

Donacia nitida Germar.

Elongate; color metallic green, golden-green or bronze; elytra concolorous or sutural apical and lateral intervals green or golden-green changing on the next interval to reddish-cupreous and then on three or four discal intervals to a dull, metallic green; antennae black, with a more or less distinct metallic tint, joints more or less distinctly red at base, tarsi narrowly red at base.

Head slightly prolonged, squarely truncate and rather deeply constricted behind the eyes; eyes small, but rather prominent; median line deep; above the antennal tubercles a rather vague, transverse impression, which gives the posterior part a faint tubercle-like appearance; surface shining, scarcely pubescent; punctures dense, moderate; antennae extending to or nearly to the middle of elytra, second and third joints short, the latter slightly longer than the second but scarcely as long as the first joint.

Prothorax about as wide at apical margin as long; anterior angles distinct, not prominent; posterior angles distinct but not prominent; lateral tubercles rather large, convex, reaching nearly to the middle, feebly punctate and distinctly separated from the disk by a deep, rather

narrow, arcuate impression; median line rather wide and more or less deeply impressed; anterior impression absent; posterior transverse impression very distinct; surface shining, sparsely and rather finely punctate; punctures denser along the median line and anteriorly and posteriorly more or less transversely and longitudinally confluent.

Elytra with ante-median impressions feeble, post-median absent; strial punctures moderate, a little finer towards apex; surface shining with a few coarse, transverse rugae; intervals sparsely minutely punctate.

Body below feebly and moderately closely punctate and sparsely pubescent with short, cinereous hairs; side pieces of prosternum coarsely strigate; posterior femora strongly incrassate, at base distinctly narrower than at apex, armed below with a large triangular acute tooth in both sexes. Length: 8–8.25 mm.

Male: First ventral segment with a more or less distinct median impression; last ventral segment rather feebly impressed at middle of apex; last dorsal segment broadly but feebly emarginate at apex.

Female: First ventral segment normal; last ventral segment broadly rounded at apex; last dorsal segment apparently feebly emarginate at apex.

New York: Freeville, near Ithaca, June (Knab, Dietrich).

This interesting species, of which I have seen five specimens, collected by the late Frederick Knab and H. Dietrich, is similar to typical *flavipes*. It is a little less robust than that species, but not as slender as *emarginata* or *notmani*. It differs from *flavipes* by the unicolored, bright metallic green and more sparsely punctate posterior femora. *D. notmani*, described below, has similar strigate sculpture of prothorax especially below, but the antennal joints are longer, the posterior femora are less strongly clavate and armed below with a moderate tooth, the head is less deeply constricted behind the eyes and the lateral tubercles of prothorax are smaller in *notmani*.

Donacia nitida Germ. has never been recognized and I am not altogether certain that the few specimens from Freeville are correctly identified as that species; they all have the elytra tricolored.

Germar records this species doubtfully from North America. However, his description does not fit any of the palaearctic *Plateumaris* nor any other foreign species of which I was able to consult the descriptions. It is, therefore, probable that his specimens came from North America and as these Ithaca specimens agree better with Germar's description than any other North American species I consider them *nitida* for the present till the types can be located and compared.

Donacia notmani new species.

Plate V, fig. 18.

Elongate; color blue or purple (males) or aeneous, cupreous or bright metallic green (females); antennae either entirely black with feeble metallic tint or some of the joints reddish at base; legs concolorous.

Head a little prolonged, truncate and moderately constricted behind the eyes, which are small and moderately prominent; median impressed line fine and deep; above the antennal tubercles a more or less distinct and deep circular impression; surface very feebly pubescent and closely punctate with moderate punctures; antennae reaching to about middle of elytra in the male, shorter in the female; third joint slightly longer than the second but not as long as the first joint.

Prothorax about as wide at apex as long; anterior angles distinct, occasionally feebly prominent; posterior angles generally more or less distinctly prominent; lateral tubercles moderately large and convex, separated from the disk by a rather shallow, wide and densely rugose impression; sides below the lateral tubercles more or less distinctly arcuate, converging behind, though sometimes feebly; median line generally distinct but rarely deeply impressed; anterior impression absent; posterior impression very distinct; surface shining, transversely and obliquely strigate-rugose, the middle of disk occasionally without this sculpture, but finely and sparsely punctate.

Elytra with ante-median impressions distinct or feeble; post-median impressions feeble or absent; serial punctures nearly alike in the basal and apical part; surface shining, with coarse transverse rugae; intervals minutely, sparsely punctate.

Body below moderately closely punctate; pubescence cinereous, very short and sparse; prosternal side pieces rather coarsely longitudinally strigate; posterior femora moderately incrassate, at base narrower than at apex, armed below with a moderately large, acute tooth. Length: 6.5 to 8 mm.

Male: First ventral segment shallowly, longitudinally excavated at middle; last ventral segment distinctly depressed at middle of apex; last dorsal segment truncate at apex, rarely broadly but feebly emarginate.

Female: First ventral segment normal or slightly flattened at middle; last ventral and dorsal segments broadly rounded at apex; lower vaginal plate narrow, parallel for a short distance, thence a little wider at about the point where the sides begin to converge to apex into an acute point (plate V, fig. 18).

New York: Wallface Mt., Essex Co., July (Notman, Nicolay and Quirsfeld).

Type in the Brooklyn Museum collection; paratypes in National Museum collection and that of Mr. Notman, whose name I attach to this interesting addition in recognition of various favors received.

D. notmani is closely related to *emarginata* and looks very much like that species. It differs from the latter or its varieties in the peculiar circular impression above the antennal tubercles of the head, the relatively coarse strigate-rugose sculpture of the upper and underside of prothorax, the truncate or sub-truncate apex of last dorsal segment of the male, broadly rounded in the female—in *emarginata* the last dorsal segment in both sexes is very distinctly emarginate—and in addition the lower vaginal plate of the female is distinctly smaller and of different form than in *emarginata*. *D. nitida*, which it also in some way resembles, is a little stouter insect with shorter antennal joints, head behind the eyes more deeply constricted, larger thoracic tubercles, more strongly incrassate posterior femora which latter have a large tooth, and the lower vaginal plate, as much as can be seen in the single female, is evidently broader.

I have seen about fifty specimens of both sexes of this species of which the males are always dark blue or rarely purple while the females are more brightly colored and apparently never dark blue.

The circular cephalic impression above the antennal tubercles is more or less distinct in the majority of specimens seen but in one or two it is very faint. The lower vaginal plate of the females is smaller than in any other North American species of the subgenus *Plateumaris*.

Donacia emarginata Kirby.

Plate V, fig. 14.

Elongate; color black, blue, purple, metallic green, aeneous or cupreous; antennae entirely black with metallic tint or joints more or less bicolored; legs concolorous, tibiae and tarsi at base occasionally reddish.

Head slightly prolonged behind the eyes, truncate on each side and distinctly constricted, the eyes small and moderately prominent; median impressed line deep; surface densely punctate with moderate punctures; antennae extending to about the middle of elytra, rarely beyond the middle; second and third joints small, third a little longer but never as long as the first joint.

Prothorax about as wide at apex as long; anterior angles distinct, occasionally slightly prominent; posterior angles distinct, feebly prominent in some specimens; lateral tubercles moderate in size, distinctly separated from the disk by a more or less deep impression; sides below the lateral tubercles generally feebly arcuate and more or less distinctly converging towards base, or almost straight, parallel; median line more or less distinct or absent; surface sculpture variable from dull, distinctly alutaceous with sparse, moderate punctures to smooth shining with sparse punctures intermixed occasionally with smaller punctures or shining with more or less dense rugose sculpture, and mostly without punctures.

Elytra with more or less distinct impressions, the post-median generally faint or absent; strial punctures moderately large, finer towards apex; surface more or less shining, with or without coarse, transverse rugae; intervals with or without fine punctures.

Body below closely punctate and sparsely pubescent with short, whitish or cinereous hairs; side pieces of prosternum rather finely strigate-rugose, the strigation generally less distinct at about apical half than at basal half; posterior femora not strongly incrassate, at base not or feebly narrower than at apex, armed below with a moderately large or large acute tooth in both sexes. Length: 6–8 mm.

Male: First ventral segment with a more or less deep and wide impression along middle; last ventral segment distinctly depressed at middle of apex; last dorsal segment generally deeply emarginate at apex.

Female: Last ventral segment rounded at apex; last dorsal segment distinctly emarginate at apex; lower vaginal plate rather narrow, parallel for some distance and then slightly arcuately converging to apex into a sharp point (pl. V, fig. 14).

This variable species is divisible in the following three more or less distinct forms. The differences based principally on the form and sculpture of prothorax are more pronounced in the females than in the males.

Typical *emarginata* in which the sculpture of prothorax is different in the two sexes will be known by the following characters:

Male: The prothorax is generally distinctly converging to base behind the lateral tubercles, surface more or less distinctly and very finely alutaceous, occasionally feebly shining, on the disk are a variable number of minute punctures and intermixed with these a few larger punctures, the minute punctures often more or less transversely and longitudinally confluent, producing a more or less distinct finely rugulose

sculpture, which is generally more evident along the median line and at apex; the tooth of posterior femora is generally moderate.

Female: The same form of prothorax as in the male; surface generally much more alutaceous and dull, without or with a very few minute punctures, but the larger punctures are very evident; the tooth of posterior femora as in the male, generally moderate.

Nova Scotia: Halifax (Perrin. Ent. Br.); MacNales Isld. (Ent. Br.); Weymouth (Ent. Br.).
Quebec: Montreal (Knab coll.), June (Chagnon); Joliette (Chagnon).
Ontario: Sudbury (Ent. Br.); Hastings (Evans, Ent. Br.); Ottawa (Simpson, Ent. Br.); Mer Blue (Ent. Br.).
British Columbia: Victoria (Ent. Br.); Vernon, May (Hopping).
Oregon: "Or." (Minn. Univ.).
Washington: "W.T." (Minn. Univ.).
Utah: Great Salt Lake, June (Van Duzee).
Colorado: "Col." (Austin in Leng coll.); Platte cañon, May (Nat. Mus. coll.).
Dakota: "Dak." (Minn. Univ.).
Michigan: Livingston Co., May (Hatch); White Fish Point (Hubbard and Schwarz); Munising, June (Agric. coll.).
Indiana: Osborn, Hessville, May (Liljeblad).
Wisconsin: "Wisc." (Knab coll.).
Maine: Tim Pond Plantation, June (Frost); Greenville, June (Frost); Orono, July (Parshley); Wales, June (Frost); Agiscoos Lake, July (Frost).
Massachusetts: Framingham, May (Frost).
New Hampshire: Mt. Washington, June (Nicolay, Frost); Claremont, May (Engelhardt); Mason, May (Frost).
New York: Brownsville, Long Island, May (Woodruff); Adirondack Lake, June (Leonard); Bronxville, May (Shoemaker); Cranberry Lake, June (Hatch); Mosholu, April (Schaeffer).
New Jersey: Berkeley Heights (Bischof).

var. PACIFICA new variety.

In this form the sculpture of prothorax is alike in both sexes or very nearly so, surface often very shining, especially in the males, in the females generally less so, the surface generally not rugose but with more or less distinct minute punctures, these intermixed with larger punctures. The color is generally metallic blue or purple, occasionally metallic green or cupreous in the females, rarely cupreous in the males. The armature of posterior femora as in typical *emarginata*.

Type, male, and allotype, female, in the Museum collection. Paratypes in the Nat. Museum collection.

California: Shasta Springs, May (Kusche ex Van Dyke and G. Franck); Dunsmir (Wickham); Carrville, May (Van Dyke); Plummer Springs, June (Hopping); Northfork, May (Dietrich).
Other specimens seen are labelled simply "Cal."

The prothorax in this form is frequently more convex. A few specimens show a faint, very fine rugosity on each side of median line.

The majority of specimens seen from California have the above characters more or less distinct and can be readily separated from the typical form; however, two or three females before me have the prothoracic sculpture very nearly as in certain females of typical *emarginata*. In a few male specimens of typical *emarginata* the rugosity of the prothorax is feeble but apparently never as shining as in most of the California specimens.

var. FROSTI new variety.

This form differs from typical *emarginata* in being generally of a little shorter form and having shorter antennal joints; tooth of the posterior femora large, triangular and acute; last dorsal segment always deeply emarginate in both sexes; prothorax shining in both sexes, wider in about basal half with the sides nearly parallel, feebly or not converging behind, the sculpture alike in both sexes and more or less densely rugose, the rugosity obliterating generally the minute and large punctures entirely, which are always so distinct in typical *emarginata* and var. *pacifica*.

Type (male) and allotype (female) from Framingham, Mass. (Frost), in the Museum collection. Paratypes in the collections of Mr. C. A. Frost and National Museum.

Alberta: Edmonton, June, August (Carr).
Manitoba: Aweme, June (Criddle); Rembrandt, May (Wallis).
Ontario: "Ont." (coll. O. Dietz).
Michigan: Washtenaw Co., May (Hatch); White Fish Point (Hubbard and Schwarz); Oakland Co., May (Frankenfield).
Maine: Cumberland, July (Nicolay); Wales, June (Frost).
Massachusetts: Framingham, June (Frost); Southboro, May (Frost); Cunningham, May (Knab); Andover, June (Frost); Milton, June (Knab); Northampton, May (Knab); Springfield, May (Knab); Sherborn, May, November sifting (Frost).

New York: Ramapo (Schaeffer); Peekskill (Sherman); Ringwood, May (Dietrich).

New Jersey: Lakehurst, May (Davis, Nicolay).

This variety is quite distinct from the typical form by its generally shorter form and antennae, wider, shining and differently sculptured prothorax which is alike in both sexes, the very deeply emarginate apices of last dorsal segment and the always large, triangular femoral tooth of the males and females. The males are generally metallic blue, purple or green, very rarely cupreous. The females are apparently never blue but aeneous, brownish or reddish-cupreous with or without bluish tint or metallic green. The sculpture of elytra is frequently coarser. Several specimens of this form were labelled *pusilla* in different collections.

Messrs. Frost and Knab have found this form on *Carex stricta* and Mr. Frost has seen specimens eating the pollen of this plant.

Typical *emarginata* have been taken on flowers of marsh marigold (Woodruff), on flowers of spiked maple (Frost) and in Brit. Col. on *Lysichton kamschatcense* (Hopping). Prof. Needham records the larva, pupa, etc., on roots of *Sparganium androcladium*.

D. emarginata and varieties are distinguished from allied species by having the last dorsal segment of both sexes distinctly emarginate at apex, the posterior femora relatively feebly incrassate with the tooth moderate or large, the finer sculpture of prothorax above and below and the femora always uniformly metallic. The lateral margin seen from a postero-lateral view is generally narrowly acute and even in almost its entire length, in a few specimens of the var. *frosti* it is more or less finely interrupted.

Donacia metallica Ahrens.

Moderately elongate; color aeneous, cupreous, metallic green, blue or black; antennae reddish with first joint metallic or the joints more or less black at apex; legs reddish, femora in apical half or more and sometimes the tibiae towards apex metallic; body below metallic, occasionally the last ventral segment more or less reddish.

Head shining, distinctly narrowed, truncate and constricted behind the eyes, which are small and moderately prominent; median line distinctly impressed; surface generally not densely punctate, punctures frequently well separated at middle, anteriorly and posteriorly more closely placed; antennae rather short, not extending to the middle of elytra; second joint short, third a little longer and nearly as long as the fourth joint but shorter than the first joint.

Prothorax generally not wider at apex than long; anterior angles distinct, occasionally prominent; posterior angles not or feebly prominent; lateral tubercles distinct but laterally generally feebly prominent, separated from the disk by a shallow, densely rugose impression; sides below the tubercles distinctly and sometimes strongly converging towards base; median line rarely distinct, usually vague; anterior impression absent; posterior impression more or less distinct; surface generally finely punctate, occasionally a few of the punctures larger, caused by the confluence of two or three of the smaller punctures, punctures denser and more or less transversely and longitudinally confluent at apex, towards base and along the median line, on each side of the latter generally a smooth space of variable size either without or with a few punctures.

Elytra without any impressions or occasionally a feeble antemedian impression on each side; serial punctures rather small; surface with a few transverse rugae; intervals smooth or distinctly punctate; lateral margin from a postero-lateral view acute in more than basal half, towards apex it is transversely arcuate.

Body below closely but not densely punctate, pubescence short and sparse; side pieces of prosternum finely rugose; posterior femora reaching to about the apex of the third ventral segment, armed below with a small tooth, which is generally absent in the females and occasionally in the males. Length: 5–7.5 mm.

Male: First ventral segment more or less distinctly excavated at middle; last ventral segment feebly depressed at middle; last dorsal segment truncate at apex.

Female: Last ventral and dorsal segments arcuate at apex; lower vaginal plate similar in form as in *emarginata* but relatively a little broader.

Hudson's Bay: "Huds. B." (Brit. Mus. Nat. Hist., Fry coll.).
Ontario: Toronto (Crew, Cornell Univ.); Mt. St. Hilaire (Chagnon).
Quebec: Montreal (Winn, Chagnon); Joliette (Chagnon); Oka (Chagnon).
Maine: Wales, July (Frost); Cumberland, July (Nicolay); Greenville, June (Frost).
Massachusetts: Framingham, May (Frost); Southboro, May (Frost); Hopkinton, June (Frost).
New Hampshire: White Mts. (Hubbard and Schwarz, Nicolay); North Conway (Roberts); Walpole, May (Frost).
Connecticut: Cornwall, June (Chamberlain).
New York: Keen Valley, June (Notman); Portage, May (Knight); McLean, July (Corn. Univ.); Mud Creek, June (Corn. Univ.); Tarbel, June (Davis); West Point, May (Robinson).

New Jersey: Wenonah, May (Wenzel); Lakehurst, June (Davis); Hewit (Schaeffer).
Pennsylvania: Chinchilla, June (Craighead); Hummelstown, May (Knull); Allegheny (Hamilton); Starlight, June (Shoemaker).
Maryland: Plummer's Island, June (McAtee).
District of Columbia: Washington, Feb. (Knab).
North Carolina: "N. C." (Leng coll.).
South Carolina: "S. C." (Leng coll.).
Virginia: Fort Monroe, June (Hubbard and Schwarz).
Florida: "Fla." (Leng coll.).
Ohio: Cincinnati, May (Drury).
Illinois: "Ill." (Leng coll. and Minn. Univ.).
Michigan: Livingston Co., June (Hatch); Berrien Co., June (Hatch); Washtenaw Co., May (Hubbell).

Mr. Wenzel found this species "in numbers by sweeping various grasses, Bur reeds (Sparganiaceae) and *Sagittaria* in a swamp fed by tide water." It is taken on *Carex stricta* by Mr. Frost and on *Ranunculus acris* by Mr. Davis.

In Journ. N. Y. Ent. Soc., vol. XXVII, p. 318, I expressed my doubt as to the correct identification of *D. femoralis* Kirby and suggested the possible identity of the latter with *D. metallica* Ahr. Since then, through the kindness of Mr. Arrow, I have received a specimen compared with the type of *femoralis*, which is, as I surmised, the same as *metallica*.

The specimens under *femoralis* in the collection of Dr. Horn, whose identifications Mr. Leng in his revision followed, belong to two different species; the one labelled *germari* is a new species and the specimens labelled *femoralis* are *germari*, the latter supposed to be a synonym of *femoralis*.

Dr. Leconte in his revision places *femoralis* in a separate group, distinguished mainly from the rest of the species, belonging to the later described genus *Plateumaris*, by more parallel form and distinct ocular orbits. This latter puzzled me a good deal as no American nor European *Plateumaris* have distinct ocular orbits and I thought that Leconte's specimens belong possibly to a species unknown to me. However, Dr. Leconte's specimens which I saw later belong to two known species. The female is *metallica* and the male *germari*, but in both I could not see any distinct ocular orbits.

D. cataractae Newm. is a synonym of *metallica* and not of *pusilla*. Mr. Arrow, at my suggestion, kindly examined the type in the Brit. Museum and informed me that *cataractae* is the same as *metallica*.

D. parva Lac. is also a synonym of *metallica* and not of *flavipes*. Lacordaire's description does not agree with the latter at all but very well with bluish-black specimens of *metallica*.

D. metallica is distinguished from the species which have the third and fourth antennal joints small, equal or sub-equal, the hind femora without or with a small tooth and the last dorsal segment truncate at apex in the male, by its rather more evenly convex form, elytra with at most feeble ante-median impressions, prothorax below very finely rugose at sides, above always distinctly and generally finely punctate. Though the punctures in some parts are occasionally more or less confluent, producing a rugose sculpture, the prothorax is never entirely rugose in this species, and there is usually a smooth space on each side of median line which is very sparsely punctate.

Donacia germari Mannerheim.

Plate V, figs. 8 and 13.

Elongate; color variable, aeneous, bronze, cupreous, blue, black or prothorax metallic and elytra flavous or prothorax and elytra flavous; antennae entirely black or more frequently the joints more or less annulate; legs entirely pale but the posterior femora at least has often a metallic spot of variable size near apex; below entirely metallic, occasionally the last ventral segment at apex flavous.

Head constricted behind the eyes which are moderately prominent; median line fine and deep; surface densely punctate; antennae reaching to about the middle of elytra or slightly beyond, third joint distinctly longer than second, occasionally as long as the first and nearly as long as the fourth.

Prothorax about as wide at apex as long; anterior angles distinct, rarely oblique but sometimes distinctly projecting laterally; basal angles more or less prominent; lateral tubercle distinct though often feebly separated from the disk by a shallow impression; sides converging towards base and often more or less arcuate; median impressed line generally absent or very feeble; basal impression generally distinct; surface alutaceous and dull, rarely slightly shining, punctuation variable from finely and sparsely to rather densely punctate, at least, in some parts, punctures rather shallow, not deeply impressed.

Elytra usually with distinct impressions, the post-median generally feeble; surface with more or less distinct, coarse, transverse rugae, intervals feebly punctate with minute punctures; lateral margin generally acute in basal half.

Body below closely punctate and sparsely pubescent with short, white hairs; prosternal side pieces finely rugulose anteriorly, posteriorly finely strigate-rugose; posterior femora extending to the apex of the third ventral segment, rather robust but feebly clavate and at base as wide as at apex, below armed in both sexes with a moderate tooth. Length: 5.5–7 mm.

Male: First ventral segment slightly depressed along middle; last ventral segment distinctly impressed at middle of apex; last dorsal segment emarginate at apex.

Female: Last ventral segment broadly rounded at apex; last dorsal segment emarginate at apex.

Nevada: "Nev." (Knab coll.).
California: Floating Island, Lake Tahoe, July (Van Dyke).
Washington: Wenass V. Taylor's, July (Mus. Comp. Zool.); Ilwaco (Hubbard and Schwarz).
British Columbia: Inverness, Metlakatla (Keen in coll. Wickham and Brit. Mus.).
Alaska: Sitka (Leconte and Brit. Mus. coll.); Kadiak (Kinkaid, U. S. Nat. Mus.); "Above snow line on mts. opp. Wrangle Isld.," July (Notman coll.).
Alberta: Edmonton, June (Carr).
Montana: "Mont." (coll. O. Dietz).
Wyoming: "Wy." (coll. O. Dietz).
Manitoba: Miles 256 and 332 Huds. B. Ry., July (Wallis); Rembrandt, May (Wallis).
Ontario: Nepigon (Ent. Branch); Prince Edw. Co., June (Brimley, Biol. Surv.).
Michigan: Pentwater, July (Liljeblad); Douglas Lake, July (Hatch); Lake Superior (Marshall); Port Huron and White Fish Point (Hubbard and Schwarz).
Wisconsin: "Wisc." (Minn. Univ.).
Indiana: Pine, May (Liljeblad).
New Jersey: Lakehurst (Davis); "South N. Jersey," May, 1866 (Higbee in coll. Mus. Comp. Zool.).
New York: "N. Y." (Am. Museum coll.): Rockaway B., Long Island, May (Shoemaker); McLean Bogs, May (Dietrich).
Massachusetts: Framingham and Hopkinton, June (Frost); Cummington, May (Knab).
Maine: Wales, June (Frost).

Newfoundland: Stephenville, July (Engelhardt); Miquelon (Hardy, in coll. Fairmaire of Mus. Paris).

Specimens of this species in Mr. Wallis' collection are labelled "on flowers of *Caltha palustris* (Mrs. Mulligan)."

var. FLAVIPENNIS Mannerheim.

Differs from typical *germari* in having the prothorax and elytra, or only the elytra flavous, the prothorax in the latter metallic but the anterior and posterior angles, base above and below and a spot near anterior coxae more or less flavous.

Alaska: Sitka (coll. of Leconte and Brit. Museum); Metlakatla, June (Kinkaid, Nat. Mus.).

British Columbia: "B. C." (Wickham); Bon Accord (Knab coll.); "B. C." (Taylor in coll. Wallis).

Oregon: Dilley (Leng coll.).

The males have the prothorax and elytra flavous and the females only the elytra, the latter sex have the prothorax largely metallic, that is, in the few specimens which I have seen.

Specimens with flavous or rufous elytra or with entirely pale upper surface occur frequently in the true Donacias but not in any European nor American species of the sub-genus *Plateumaris* except in *germari*. It is on account of this unusual color variation that I restore *flavipennis* as a western color variety of *germari*.

D. germari was wrongly considered to be the same as *femoralis* Kirby, which is synonymous with *metallica* Ahr. as already pointed out above in the remarks following the description of the latter species. As remarked under *metallica*, Dr. Leconte's male and female of *femoralis* belong to two species, the female is *metallica* and the male is *germari*. Following these in his collection are two specimens from Sitka labelled *germari* and two specimens from the same locality labelled *flavipennis*. The specimens, judging from the labels, were undoubtedly sent to Dr. Leconte by Count Mannerheim and possibly belonged to the series from which he described *germari* and *flavipennis*. Crotch, working on the North American Chrysomelidae, accepts Dr. Leconte's identification of *femoralis*, but apparently compared the Sitka specimens only with the male and finding them identical placed *germari* as synonym of *femoralis*. *D. aurifer* and *dives* of Leconte are not synonymous with *pusilla* but are the same as *germari*. The *aurifer* var. of Leconte's revision is a new species. My *serricauda* is also a synonym of *germari*.

D. germari has the prothorax distinctly alutaceous, the punctures shallow and rarely very dense, generally the impressed median line

absent and the sides below finely rugulose. The hind femora (pl. V, fig. 8) are rather robust but feebly clavate with base rather wide and of the same width as at apex which, however, is generally more pronounced in the male than in the female; the tooth below is generally moderate and the last dorsal segment of both sexes is emarginate at apex. The lower vaginal plate (pl. V, fig. 13) differs from all the other species in being more broadly arcuate at apex, the margins not finely but coarsely crenate and at middle with a more or less distinctly projecting, sharp point.

DONACIA DIVERSA new species.

Plate V, figs. 7 and 12.

Elongate, females occasionally robust; above metallic brown or cupreous; antennae rufous with the joints more or less black at apex; below metallic, ventral segments at apex narrowly rufous; legs rufous.

Head not strongly narrowed behind the eyes, but distinctly constricted; eyes prominent; median impressed line fine and deep; surface distinctly pubescent and finely and densely punctate; antennae reaching to the middle of the elytra in the male and not quite to the middle in the female, second joint small, third distinctly longer and as long as the first joint, outer joints elongate.

Prothorax as wide at apex as long; anterior angles distinct, obtuse; posterior angles feebly prominent; lateral tubercle feeble, internally separated from the disk by a shallow arcuate impression; sides slightly converging behind the tubercle, sometimes more or less arcuate; median impression absent or very feebly indicated; basal impression distinct; surface shining, densely punctate-rugose especially along apex, median line and base.

Elytra shining without dorsal impressions; serial punctures moderately large, scarcely finer towards apex; surface coarsely rugose, produced by more or less closely placed transverse coarse rugae, intervals more or less distinctly punctate, some of the intervals more or less convex; lateral margin, from a postero-lateral view acute in about basal half but not even and more or less interrupted.

Body below densely punctate and a little more densely pubescent than usual in this group; side pieces of prosternum near the anterior coxae with a distinct, though sparsely pubescent spot, externally more or less distinctly vermiculate-rugose; posterior femora extending to or slightly below the apex of the third ventral segment, robust, feebly clavate, at base wider or as wide as at apex, armed below with a large tooth in both sexes. Length: 8–9 mm.

Male: First ventral segment feebly flattened at middle; last ventral segment slightly depressed at middle of apex; last dorsal segment broadly but not deeply emarginate at apex.

Female: Last ventral segment broadly rounded at apex; last dorsal segment more or less distinctly emarginate at apex; lower vaginal plate as in *sulcicollis*, that is, the anterior part is shaped like an arrowhead, but the posterior part has the sides straight parallel, which are in the latter species somewhat arcuate.

The type is a female, doubtfully labelled "Indiana" in the Museum collection, the allotype a male from Wisconsin (O. Dietz).

Canada: "Canada" (Brit. Museum in Baly and Fry colls.).
Ontario: Point Pelee, June (Bigelow in coll. Frost).
Indiana: Pine, May (Wolcott); Lake and Kosciusko counties, June (Blatchley).
Wisconsin: "Wisc." (O. Dietz).

Prof. Blatchley swept this species from sedges in low moist meadows.

Of the eight specimens which I have seen of this species only one is a male, which possibly was collected near Milwaukee, where the late Ottomar Dietz began to collect Coleoptera.

D. harrisi in Prof. Blatchley's "Coleoptera of Indiana" is wrongly identified, it is the above described new species.

The head in this species is less strongly narrowed behind the eyes than in most of the species of this section of the genus, but is distinctly constricted; the neck is wide; the prothorax has the lateral tubercles feeble, scarcely evident laterally, the sculpture rather densely punctate-rugose above, below at sides more or less vermiculate-rugose and near the anterior coxae is a small sparsely pubescent spot. This pubescent spot is absent in all *Plateumaris*, which have the prothorax above not pubescent—in the few European species which have the prothorax above pubescent the entire underside is also pubescent. The legs are pale and the posterior femora robust (pl. V, fig. 7), very slightly clavate and at base generally slightly wider than at apex with a rather large tooth below. The last dorsal segment is more or less distinctly emarginate at apex in both sexes. The lower vaginal plate (pl. V, fig. 12) of the female is nearly as in *sulcicollis* but the sides above the triangularly shaped apical part are straight—in *sulcicollis* slightly arcuate.

The females of this species look superficially like those of the European *affinis*.

DONACIA FULVIPES Lacordaire.

Plate V, fig. 19.

Moderately elongate; color bronze, cupreous, metallic green or blue, below metallic, the last ventral segment at apex more or less reddish; antennae entirely rufous or some of the outer five or six joints or all of that color, the preceding joints black with slight metallic tint and scarcely annulate; legs entirely reddish or more frequently femora with an apical metallic spot of variable size.

Head distinctly narrowed, truncate and constricted behind the eyes, which are prominent; median line fine and deeply impressed; surface punctate-rugose; antennae reaching to about the middle of elytra in the male, a little shorter in the female, second and third joints small, equal or sub-equal, the third shorter than the first joint, the outer joints narrow and elongate, and not distinctly stouter than the preceding joints.

Prothorax shining, about as wide at apex as long; anterior angles distinct, more or less prominent, posterior angles moderately prominent; lateral tubercle generally distinctly separated from the disk by a wide, arcuate, shallow impression, laterally feebly prominent; sides not strongly converging and feebly arcuate behind; median impressed line generally absent, occasionally in some specimens a finely impressed line or very rarely a moderately wide line; basal impression generally faint; surface densely punctate-rugose.

Elytra shining, with a more or less distinct ante-median impression; post-median impression feeble or absent; strial punctures moderate, finer towards apex; coarse, transverse rugae generally feeble or absent; intervals usually densely and finely punctate; lateral margin from a postero-lateral view acute in about basal half, thence gradually transversely arcuate to apex.

Body below densely and finely punctate and rather sparsely pubescent with white or cinereous, short hairs; side pieces of prosternum densely rugose or finely strigate-rugose, which is generally more distinct at basal than at apical half; posterior femora extending to the apex of the third ventral segment, moderately strongly clavate, at base not or slightly narrower than at apex and armed below with a moderately long and generally acute tooth in both sexes. Length: 5.25–6.5 mm.

Male: First ventral segment feebly or moderately excavated along middle; last ventral segment depressed at middle of apex; last dorsal segment distinctly emarginate at apex.

Female: Last ventral segment arcuate at apex; last dorsal segment arcuate at apex but narrowly incised at middle; lower vaginal plate (pl. V, fig. 19) wider than in *emarginata.*

Alberta: Edmonton (Carr ex Chagnon).
Wyoming: Como. (O. Dietz coll.).
Manitoba: Aweme, July (Criddle); Husavick, July (Wallis).
Ontario: Nepigon (Ent. Branch, Ont.).
Michigan: White Fish Point (Hubbard and Schwarz).
Wisconsin: Dane Co., June (Marshall).
Maine: Monmouth, Wales and Paris, June (Frost); Orono (Parshley); Cumberland Co., May (Nicolay).
Massachusetts: Framingham and Hopkinton, June (Frost); Cummington, May (Knab); Ipswich River, May (Emmerton, sifting).
Connecticut: Suffield, May (Zappe).
New York: Suffern (Schaeffer); Keene Valley, July (N. Y. State coll.); Wyandanch, Long Island, April (Shoemaker, sifting); Orient, Long Island, October (Schott).
New Jersey: Centerton, June (Liebeck); New Foundland, May (Davis).
Pennsylvania: Starlight, June (Shoemaker).

The specimens collected by me at Suffern several years ago were swept from grasses and weeds growing in a low, moist meadow near a small creek.

This is the species Dr. Leconte identified wrongly as *cuprea* Kirby and both names are made at present synonyms of *pusilla* Say but the latter and *fulvipes* are certainly very distinct from each other. In regard to the true *cuprea* of Kirby remarks will be found under *quadricollis* Say.

In 1919 I called attention to the distinctness and also wrong identification of this species, which was considered to be the same as *pusilla* and suggested that it is probably *dives* Lec. But later when I studied Lacordaire's description of *fulvipes* the specimens seemed to fit his description better, especially in regard to the coloration of antennae. However, the few specimens I had at that time possessed no impressed median line of prothorax, which Lacordaire describes as "le sillon dorsal est large, assez profond," etc. When I received specimens of *shoemakeri*, the small variety of *flavipes*, having a rather wide and deep median line of prothorax, I considered these to be *fulvipes* and as the other species was then unnamed I called it in manuscript *mimetica.* When I returned the British Museum material Mr. Bryant wrote me that the specimens labelled *fulvipes* are different from the type, but the specimens labelled *mimetica* are very close to the type of *fulvipes*, in fact, are only larger.

Since then I have seen more material of this species and among them were specimens with distinct median line of the prothorax which in some specimens answers Lacordaire's description.

In the majority of the forty odd specimens seen some of the outer joints of the antennae are entirely reddish, the inner ones metallic and not or feebly reddish at base, a few have the antennae and legs entirely reddish but in none of the specimens are all the antennal joints distinctly annulate, that is, bright red at base and black or metallic at apex.

D. fulvipes Lac. might be confused with *pusilla* but it is a little stouter insect with the outer antennal joints narrow and elongate and not distinctly stouter than the inner ones, the lateral margin of elytra is never evenly acute in its entire length, the posterior femora are more distinctly clavate and have below in both sexes a longer, acute tooth and the last dorsal segment of the female is distinctly incised at middle of apex—entire in females of *pusilla*. The following species, *D. wallisi*, is also very similar to *fulvipes* and remarks on the differences between the two will be found under the former.

The Siberian *annularis* Reit. is very close to *fulvipes*, the females, however, more than the males. The Siberian species is more elongate, the antennal joints two to eleven usually distinctly annulate, though one female has the first five joints metallic without red at base, the outer joints red and obscurely darker at apex; the prothorax in the males is apparently slightly longer and more distinctly converging behind the lateral tubercle, the females have the prothorax more like *fulvipes* and have also the peculiar incisure at middle of apex of the last dorsal segment. The head, sculpture of prothorax and elytra, form of antennae and legs are as in *fulvipes*.

Donacia wallisi new species.

Rather narrow and elongate; color of upper surface bronze, cupreous, obscurely metallic green or blue, rarely golden; antennae and legs usually entirely flavous, very rarely antennae almost entirely black; below metallic, last ventral segment at apex more or less pale.

Head slightly prolonged, truncate and distinctly constricted behind; eyes prominent; median line fine and deeply impressed; surface densely punctate; antennae extending nearly to or slightly beyond the middle of elytra, third joint slightly longer than second and about as long, or nearly so, as the first joint, outer joints rather narrow and elongate.

Prothorax shining, about as wide at apex as long, occasionally very slightly longer than wide; anterior angles distinct, often rounded,

occasionally prominent; posterior angles moderately prominent; lateral tubercles distinct, though often scarcely prominent laterally, more or less distinctly separated from the disk by a shallow arcuate impression; sides below the tubercles feebly converging and more or less distinctly arcuate; median impressed line fine when present but generally absent; basal impression usually distinct; surface finely rugose or very finely strigate-rugose with or without visible punctuation.

Elytra shining with at most feeble dorsal impressions; with or with scarcely any transverse coarser rugae; intervals finely punctate or finely rugose; lateral margin from a postero-lateral view more or less distinctly acute at about basal half or less, but generally not even but interrupted.

Body below densely and finely punctate and sparsely pubescent with short, white hairs; side pieces of prosternum finely and more or less distinctly strigate-rugose; posterior femora extending to or nearly to the apex of the third ventral segment, distinctly but not strongly clavate, at base generally narrower than at apex, armed below usually with a small tooth in both sexes, which is rarely absent. Length: 5.5–6.5 mm.

Male: First ventral segment more or less deeply excavated along middle, but generally more deeply anteriorly; last ventral segment depressed at middle of apex; last dorsal segment more or less distinctly, broadly emarginate at apex, rarely truncate.

Female: Last ventral and dorsal segments broadly rounded at apex; lower vaginal plate nearly as in *emarginata*.

Type, a male, and allotype, a female, in the Museum coll.; paratypes in collections of the Nat. Museum and Mr. Wallis.

Alaska: Popoff Island, July (Kinkaid in Nat. Mus.); Kutmai, July (Hine).
Alberta: Banff, June (Van Dyke); Edmonton, June (Carr).
Manitoba: Aweme, July (Criddle); Huds. B. Ry. from miles 17–332, June (Wallis); Rembrandt, May (Mrs. Mulligan in coll. Wallis).
Wyoming: Como; Yellowstone Pk., July (Nichol in coll. Minn. Univ.).
Minnesota: Duluth, Hennepin Co., and Ottertl Co. (Minn. Univ.).
Michigan: Marquette (Hubbard and Schwarz).
Huds. Bay. Terr.: "H. B. T." (Leconte coll.).

Specimens of this species in the collection of Mr. Wallis were labelled "on flowers of *Caltha palustris* (Mrs. Mulligan)."

From the smaller species with rugose prothorax, bicolored or pale posterior femora armed with a small tooth *wallisi* differs in being of more elongate and narrower form, longer antennal joints and sculpture of prothorax finer. *D. fulvipes* has a large tooth on posterior femora and

the antennal joints, also elongate, are generally slightly shorter and usually differently colored, the prothorax is wider and the form is more robust than in *wallisi*. *D. longicollis* described below is also a rather narrow insect, but has a longer prothorax which is much more narrowed behind, the strigate-rugose sculpture of the side pieces of prosternum coarser and lateral tubercles more distinct and convex; the lateral margin of elytra is generally evenly acute to a little below middle and the neck behind the eyes is wider which causes the eyes to appear less prominent.

The *aurifer* var. of Dr. Leconte's revision is a specimen of the above described species with two impressions on the prothorax which is accidental and occurs occasionally in many other species of both subgenera.

Of this species I have seen about 70 specimens or more, the majority collected by Mr. Wallis, whose name I give this distinct species in recognition of favors received.

The specimens reported as *flavipes* by Dr. Van Dyke in Nat. Geograph. Soc. Techn. pap. 1924, p. 24, are *wallisi*.

Donacia pusilla Say.

Plate V, fig. 15.

Moderately elongate to relatively robust; color of upper surface bronze, cupreous, metallic green, blue, purple or black; below metallic; legs entirely rufous or femora in about apical half or less metallic; antennae annulate, broadly red at base and black at apex, rarely the outer joints black.

Head slightly prolonged and more or less distinctly arcuately narrowed behind the eyes and distinctly constricted; median line deeply impressed; surface densely punctate-rugose; antennae extending not quite to or distinctly to the middle of elytra in the males, shorter in the females, second and third joints very small, equal, third often a little longer than the second but generally shorter than the first, fourth joint usually smaller than the first, but frequently as long as the first joint, outer joints usually stouter than the inner joints.

Prothorax more or less shining, very rarely feebly pubescent above with very short, scarcely visible hairs, about as wide at apex as long; anterior angles distinct, sometimes rounded, occasionally slightly prominent; posterior angles feeble or slightly projecting; lateral tubercles feebly separated from the disk, at sides slightly prominent; median line generally absent, rarely a specimen may have a more or less distinctly impressed median line; basal impression generally absent, occasionally

a feeble, shallow ante-scutellar impression; surface densely and moderately finely punctate-rugose.

Elytra shining with dorsal impressions distinct, the ante-median usually deeply impressed; serial punctures rather fine and slightly smaller towards apex, occasionally the punctures are moderately large; surface with more or less distinct, transverse, coarse rugae, intervals finely punctate but not densely, towards apex more rugose; lateral margin from a postero-lateral view usually evenly acute in almost its entire length.

Body below more or less densely punctate and sparsely pubescent with white or cinereous, short hairs; side pieces of prosternum finely punctate-rugose anteriorly, posteriorly more or less distinctly strigate-rugose; posterior femora reaching to the apex of the third ventral segment, rather feebly clavate and at base scarcely narrower than at apex, below armed with a small tooth in both sexes. Length: 6–7 mm.

Male: First ventral segment generally excavated along middle; last ventral segment depressed at middle of apex; last dorsal segment more or less distinctly emarginate at apex.

Female: Last ventral and dorsal segment broadly arcuate at apex; lower vaginal plate similar to *emarginata*.

This species is divisible into three forms:

Typical eastern *pusilla* have the antennae usually stout especially the outer five, the second and third joints very small and equal, the fourth rarely as long as the first joint, the prothorax rather narrow and distinctly converging behind the lateral tubercles, the hind femora always bi-colored and the color of upper surface relatively very little variable, the majority of specimens being cupreous or bronze, a few have a faint bluish tint on disk of elytra but are very rarely entirely green.

Pennsylvania: Starlight, June (Shoemaker).
New York: Ithaca, May (Corn. Univ.), June (Dietrich); Pike, Elizabeth, June (N. Y. State coll.); Black River, Lewis Co., June (Notman).
Massachusetts: Framingham, Wellesley, and Southboro, May (Frost); Brookline and Springfield, May (Knab); Cambridge (Knab coll.); Longmeadow, June (Dimmock, Biol. Surv.); Wilmington, June (Sperry, Biol. Surv.); Readville, September (Emmerton); Holliston, May (Emmerton); Sherborn, October (Frost, sifting).
Maine: Wales, June (Frost); Paris, July (Frost); Tim Pond Plant, June (Frost).
Newfoundland: Stephenville, July (Engelhardt).

Quebec: Montreal (Knab coll.); Mt. St. Hilaire (Knab coll.); St. Johns Co., July (Chagnon).
Michigan: Ann Arbor, First Sister Lake, May (Hubbell); Douglas Lake, July (Hatch); White Fish Point (Hubbard and Schwarz).
Manitoba: Aweme, June (Criddle); Winnipeg, June (Roberts); St. Notbert, June (Wallis).
Alberta: Edmonton, July (Carr).
Wyoming: Yellowstone Pk., July (Nichol).
Colorado: "Col." (Horn coll.).

Specimens of typical *pusilla* were collected on rushes (Hatch), on *Carex stricta* (Knab) and on flowers of spiked maple (Frost).

var. PYRITOSA Leconte.

This western form differs from typical *pusilla* in having the antennal joints more elongate, especially the outer, the form generally more slender and the coloration very variable, being bronze, cupreous, metallic green, blue, purple or black. The antennae are occasionally almost entirely black. The coloration of the legs, size and form of prothorax are the same as in typical *pusilla*.

California: Yosemite Val., May (Van Dyke); Carrville, June (Van Dyke); Sonoma Co. (Ricksecker).
Oregon: Corvallis (Chamberlin).
Washington: Prt. Townsend, June (Seaton).
British Columbia: "Br. Col." (Entomol. Branch).
Nevada: "Nev." (Minn. Univ.).

The antennal joints of the females of this form are generally of the same size as those of the males of the typical eastern form. However, the antennae are variable, eastern specimens occur occasionally with more elongate antennal joints and western specimens with rather short joints.

It is of interest to note that the western specimens are much more variable in color than the eastern specimens. I have seen at least 70 or more of eastern specimens nearly all of different shades of bronze or copper, a few had a slight bluish tint on disk of elytra and only two specimens were obscure-green.

var. ROBUSTA Schaeffer.

This form is generally more robust and larger, the prothorax is relatively wider below the lateral tubercles and more feebly converging behind than in typical *pusilla*, the serial punctures of elytra are usually coarser and the legs are always unicolorous reddish. The color is bronze

or cupreous, but bright green, pale bluish-green and golden specimens occur occasionally.
Iowa: Lake Okoboji, June (Buchanan).
Kansas: Douglas Co. (Snow in coll. Corn. Univ.).
Wyoming: Como. (O. Dietz coll.).
North Dakota: Minot, Ward Co., June (Notman).
Ontario: "Ont."
Manitoba: St. Notbert, Winnipeg and Miami, June (Wallis).
Alberta: Medicine Hat, June (Carr).
Washington: "Wash." (coll. O. Dietz).
California: "Cal." (coll. O. Dietz).

The last two localities are open to doubt, each represented by a single specimen only.

The typical specimens of this form from Wyoming are rather large and robust, but specimens from other localities are slightly narrower and some smaller. They all have the prothorax wider and the legs, including the femora, entirely pale. The antennae are generally stouter than in the typical form, but a few specimens have the joints more elongate. The sculpture of the upper and underside of prothorax is also generally coarser.

D. pusilla and varieties have the second and third antennal joints very small, usually equal, and the outer joints generally stouter than in the allied species, the prothorax densely punctate-rugose and usually without impressed median line and lateral tubercles rather indistinct; the side pieces of prosternum rugose or vermiculate-rugose anteriorly and rather feebly strigate-rugose posteriorly, the lateral margin of elytra generally evenly acute from base to apex and the ante-median and post-median elytral indentations generally distinct and often deeply impressed.

D. rugifrons Newm. is a synonym of *pusilla* and not of *emarginata* as the latter species has never bicolored hind femora. Unfortunately Mr. Arrow could not locate the type in the British Museum but the description agrees better with *pusilla* than with any other species found in the same region.

Donacia dubia new species.

Moderately elongate; color of upper surface bronze, cupreous or metallic green; antennae red at base, black at apex, except the first joint which is as usual metallic; legs metallic, femora, tibiae and tarsi at base more or less rufous; below metallic.

Head distinctly prolonged, truncate and distinctly constricted

behind the eyes, which are moderately prominent; median line deeply impressed; surface densely punctate-rugose; antennae not extending to the middle of elytra, second joint small, third a little longer and nearly as long as the rather small fourth joint, which latter is as long or nearly as long as the first joint.

Prothorax shining, as wide at apex as long; anterior angles distinct, more or less acute or rounded, occasionally slightly prominent laterally; posterior angles scarcely prominent; lateral tubercles distinct, at sides generally moderately prominent, distinctly separated from the disk by a rather deep, arcuate impression; sides slightly converging from behind the lateral tubercles to the sub-basal impression; generally with a more or less distinctly impressed median line; basal impression usually distinct, occasionally feeble, surface densely rugose or more or less distinctly strigate-rugose which latter sculpture is often seen more near apex and base than at middle; occasionally the entire upper surface is strigate-rugose, rarely finely punctate with only a feeble strigate sculpture near base.

Elytra shining, with ante-median impressions rather deep; post-median impressions feeble or absent; strial punctures moderate, distinctly finer towards apex; surface generally with a few transverse, coarse rugae; intervals with a few minute punctures and near apex, as usual, more or less rugose.

Body below closely punctate and very sparsely pubescent with very short cinereous hairs; side pieces of prosternum rather coarsely strigate, anteriorly occasionally rugose-strigate; posterior femora extending to the apex of the third ventral segment or slightly shorter, distinctly clavate, at base slightly narrower than at apex, armed below with a very small tooth, which is often absent or represented by an obtuse angulation. Length: 6–7 mm.

Male: First ventral segment more or less distinctly excavated at middle; last ventral segment depressed at middle of apex; last dorsal segment truncate at apex.

Female: Last ventral and dorsal segments rounded at apex; lower vaginal plate nearly as in *emarginata* but apparently a little wider.

Type a male and allotype a female from Yellowstone Park, Wyoming, in the Museum collection, paratypes in the National Museum collection.

Alaska: Sitka, June (Kinkaid in Nat. Mus.).
British Columbia: Glacier, June (Hubbard and Schwarz).
Alberta: Banff, June (Hearle in Hopping coll.).
Wyoming: Yellowstone Park (Brookl. Mus. coll.).

Idaho: Moscow, July (Piper in Nat. Mus.).
Michigan: Detroit (Hubbard and Schwarz).

The Alaska specimen has the prothorax slightly depressed above and a finer strigate sculpture and the paratype from Detroit, Michigan, has the prothorax entirely transversely and more coarsely strigate-rugose.

D. dubia is not unlike *pusilla* and could be confused with it, but the former has the prothorax more or less distinctly transversely strigate-rugose, the impressed median line usually present, and the lateral tubercles distinctly separated from the disk; the side pieces of prosternum are distinctly strigate and more shining; the elytra are wider with lateral margin gradually transversely arcuate from about middle to apex; the legs are always darker, the hind femora in both sexes without tooth or at most a still smaller tooth than in *pusilla* and the last dorsal segment of the male truncate at apex.

D. metallica with similar antennae and hind femora without or with a very small tooth has a differently sculptured prothorax with lateral tubercles less distinct, form more evenly convex, laterally more arcuate elytra and finely rugose side pieces of prosternum, which are only near the coxae somewhat strigate.

Donacia neomexicana new species.

Elongate, sub-parallel; color above metallic blue or green (males) or cupreous (females); antennae rufous, the first joint more or less metallic, the second, third and fourth occasionally infuscate at apex; legs rufous, femora frequently with a more or less distinct metallic spot of variable size near apex; body below metallic, last ventral segment entirely or only at apex reddish, occasionally all the ventral segments narrowly red at apex, or the last four segments more or less reddish.

Head shortly prolonged behind the eyes, then truncate and distinctly constricted; neck moderately wide; eyes moderately prominent; median line fine and deep; surface very densely rugose; antennae extending to about middle in the male, shorter in the female, third joint distinctly longer than second, as long or nearly as long as the fourth but generally shorter than the first joint.

Prothorax about as wide at apex as long; anterior angles distinct and usually more or less distinctly rounded but apparently never prominent; posterior angles at most feebly prominent; lateral tubercle more or less distinct laterally, separated from the disk by a moderately deep, arcuate impression; sides below the tubercle distinctly but not strongly

arcuately converging behind; median impression absent or feeble and generally obscured by the coarse surface sculpture; basal impression distinct; surface more or less shining, closely and coarsely punctate, punctures more or less confluent, intervals between the punctures more or less distinctly strigate-rugose.

Elytra shining, ante-median impressions more or less distinct; post-median impressions feeble or absent; serial punctures moderate and not finer towards apex; surface with more or less distinct transverse rugae; intervals very finely and sparsely punctate, at apex rugose; lateral margin from a postero-lateral view evenly acute to about middle or a little below, then to apex gradually transversely arcuate.

Body below densely punctate and sparsely pubescent with short cinereous hairs; side pieces of prosternum moderately coarsely strigate, shining; posterior femora extending to the apex of the fourth ventral segment, distinctly but not strongly clavate, at base slightly narrower than at apex, below with a very small, acute tooth in the male, female without tooth. Length: 6–7 mm.

Male: First ventral segment excavated at middle; last ventral segment depressed at middle of apex; last dorsal segment broadly but feebly emarginate at apex, nearly truncate.

Female: Last ventral and dorsal segments arcuate at apex; lower vaginal plate nearly as in *emarginata*.

Type, male, and allotype, female, in collection of Brooklyn Museum, paratype in Nat. Museum collection.

New Mexico: Jemez Mts. (Woodgate ex Green and Mason).

This is the first Donacia found in New Mexico which with Arizona and southern California were the only territories from which no Donacias were reported.

From the species with distinctly but not strongly clavate, unicolorous red or bicolored posterior femora with a small or no tooth below and rugose prothorax, *neomexicana* is distinguished by its relatively narrower elytra and apparently wide prothorax with its peculiar sculpture, which consists of rather coarse punctures closely placed and more or less confluent, producing a coarse, punctate-rugose appearance, the large punctures partly not obliterated but plainly visible. The relatively coarsely strigate sculpture of the side pieces of prosternum of this species is also present in *dubia* but that species has a wider elytra and differently sculptured prothorax with the punctures when present fine and lateral tubercles more distinct. The females are only slightly stouter than the males.

DONACIA LONGICOLLIS new species.

Elongate, narrow; color above bronze, cupreous, metallic green, blue or purple; antennae generally reddish with the exception of the first joint, which is metallic, occasionally all or some of the joints reddish at base and dark metallic at apex; legs reddish, femora in apical half more or less metallic.

Head shortly prolonged behind the eyes, then truncate and constricted; neck rather wide, median line deep and fine; surface densely punctate-rugose, antennae reaching to about middle of elytra in the male, a little shorter in the female, third joint distinctly longer than the second and as long or nearly as long as the first joint, occasionally as long as the fourth joint.

Prothorax moderately shining or nearly dull, generally slightly longer than wide; anterior angles feebly prominent; lateral tubercle distinct, separated from the disk by a moderately deep, arcuate impression, laterally more or less distinct; lateral margins below the tubercle more or less strongly converging behind and feebly or not arcuate; median impression more or less distinct, occasionally very faint or absent; basal impression generally distinct, sometimes scarcely evident; surface sculpture variable, generally either finely strigulate or finely rugulose, with or without larger punctures, which are often very numerous especially in the apical and basal regions.

Elytra shining; ante-median impression feeble; post-median impression generally indistinct or absent; serial punctures moderate, finer towards apex; surface with more or less distinct, transverse rugae; intervals finely and sparsely punctate, at apex more or less rugose; lateral margin, from a postero-lateral view acute from base to or below middle of elytra.

Body below densely and finely punctate and sparsely pubescent with cinereous, short hairs; side pieces of prosternum posteriorly moderately coarsely strigate, anteriorly more finely and often rather vermiculate-rugose; posterior femora extending to the apex of the third ventral segment, moderately strongly clavate and at base distinctly narrower than at apex, below unarmed in both sexes or occasionally with a small, more or less acute tooth, which is occasionally rather an acute angulation. Length: 6.25–8 mm.

Male: First ventral segment more or less deeply excavated along middle; last ventral segment impressed at middle of apex; last dorsal segment truncate at apex.

Female: Last ventral and dorsal segments broadly rounded at apex; lower vaginal plate nearly as in *emarginata*.

Type, male, and allotype, female, in the collection of the Brooklyn Museum, paratypes in the National Museum collection.

British Columbia: Metlakatla (Keen); Inverness (Keen).
Washington: Tacoma (Wickham).
Oregon: Hood River (Cole).
California: Shasta Springs, May (Kusche); Napa Co. (Van Dyke); Tuolumne Co. (Van Dyke); Dunsmir (Kusche); Eureka (Barber).
Nevada: "Nev." (Knab coll.).

The prothorax varies a good deal in form and sculpture. In some specimens it is very narrow posteriorly, in others less so; the surface is generally very finely strigate with or without coarse punctures, the latter when present more numerous at apical region, a little less so near base and sparse on the disk; the strigation is often exceedingly fine and occasionally almost absent on the disk. The hind femora are generally unarmed below in both sexes, often more or less acutely angulate, but apparently rarely with a very small acute tooth and then principally in males.

This is one of the two species considered to be *femoralis* Kirby, labelled in Dr. Horn's collection *germari* where the true *germari* is labelled *femoralis*. The above-described new species and *germari* are, however, two entirely distinct species. *D. germari* has a shorter and differently sculptured upper and lower surface of prothorax, rather robust but feebly clavate hind femora, armed below with a moderately large tooth, apex of last abdominal segment emarginate in both sexes, elytra wider and the lower and upper vaginal plates of the females are entirely different in the two.

D. longicollis is distinguished by its rather narrow and elongate form, relatively long prothorax, its very fine sculpture and distinct lateral tubercles and generally unarmed or at most feebly toothed and distinctly clavate, bicolored hind femora. *D. wallisi* is also a narrow and rather elongate insect, especially the males, and the prothorax is frequently finely strigate-rugose, but is shorter with tubercles less prominent laterally, the side pieces of prosternum finely strigate-rugose, the lateral margin at most acute only for a short distance from base and then always more or less interrupted and the neck behind the head is narrower.

Judging from the number of specimens seen in most of the older collections, including those of the British Museum and of the Entomological Branch in Ottawa, this species has been commonly taken at Inverness and Metlakatla, Brit. Col., by the late Rev. J. H. Keen. It is apparently also common in California, at least in certain localities,

as shown by a large number of specimens sent some years ago to the late George Franck and collected by A. Kusche at Shasta Springs in May.

DONACIA VERMICULATA new species.

Elongate; color above aeneous, antennae reddish, except the first joint, following joints more or less distinctly darker at apex, legs reddish, femora in about apical half metallic.

Head slightly prolonged behind the eyes, feebly arcuately narrowing to the neck and moderately deeply constricted; eyes moderately prominent; median line fine and deep; surface finely punctate-rugose; antennae not reaching the middle of elytra, third joint distinctly longer than second, slightly shorter than fourth, which is as long as the first joint.

Prothorax dull, about as wide at apex as long; anterior angles distinct not prominent, feebly rounded; posterior angles slightly prominent; lateral tubercles feebly distinct, separated from the disk by a shallow impression; median line absent; transverse basal impression very feeble, except at middle; sides below the tubercles distinctly but not strongly converging to base and slightly arcuate; surface very densely and very finely strigate, producing a dull appearance, with moderately large punctures, which are more sparse at middle than at apex and base.

Elytra without dorsal impressions; the coarse transverse rugae absent; intervals finely and closely vermiculate-rugose, denser near apex, near the scutellum finely punctate; lateral margin from a posterolateral view acute not quite to the middle, thence to apex gradually transversely arcuate.

Body below densely punctate and sparsely pubescent with short cinereous hairs; side pieces of prosternum anteriorly very finely and densely strigate and laterally with a few punctures, posteriorly coarsely strigate; posterior femora reaching to apex of third ventral segment, distinctly clavate and narrower at base than at apex, without tooth below. Length: 7 mm.

Male: Unknown.

Female: Last ventral and dorsal segments broadly rounded at apex; vaginal plates as in *emarginata*.

California: "Cal." (Ricksecker).

A single specimen in the collection of the late Ottomar Dietz, which, judging from the handwritten label on the specimen, came from Ricksecker.

This species is very near *longicollis* and I have long hesitated to

give this single specimen a name but the sculpture of the elytra is very different and not indicated in any of the numerous specimens of *longicollis* which I have seen. The prothorax is also wider than in the latter species.

List of Species and Synonymy.

Genus Haemonia Latr.

1. **H. nigricornis** Kby.
   americana Guer.
   melsheimeri Lac.
   v. **flohri** Jac.

Genus Donacia Fab.

Subgenus Donacia Fab.

1. **D. militaris** Lac.
   floridae Leng
2. **D. piscatrix** Lac.
   carolina Lac.
   cuprea//Melsh.
   alutacea Lec.
   v. **congener** Lec.
3. **D. palmata** Oliv.
   claudicans Germ.
4. **D. texana** Cr.
   v. **minor** n. var.
5. **D. rufescens** Lac.
6. **D. hypoleuca** Lac.
7. **D. edentata** Schffr.
8. **D. parvidens** Schffr.
9. **D. cincticornis** Newm.
   lucida Lac.
   v. **tryphera** n. var.
   v. **antillarum** Suffr.
   v. **tenuis** n. var.
   v. **rufipennis** Lac.
   pulchella Lec.
10. **D. proxima** Kirby
    v. **californica** Lec.
11. **D. caerulea** Oliv.
    episcopalis Lec.
12. **D. magnifica** Lec.
13. **D. hirticollis** Kirby
    rudicollis Lac.
14. **D. pubescens** Lec.
15. **D. quadricollis** Say
    cupraea Kirby
    curticollis Knab.
16. **D. rugosa** Lec.
17. **D. assimilis** Lac.
    glabrata Schffr.
18. **D. biimpressa** Melsh.
    aurichalcea Melsh.
    torosa Lec.
    distincta Leng
    v. **limonia** n. var.
19. **D. porosicollis** Lac.
20. **D. distincta** Lec.
21. **D. subtilis** Kunze
    aenea//Ahrens
    confluenta Say
    aequalis Kirby
    aerea Lac.
    confluens Lec.
    v. **fulgens** Lec.
22. **D. tuberculifrons** Schffr.
23. **D. vicina** Lac.

24. **D. liebecki** Schffr.
pallipes//Lac.
25. **D. megacornis** Blatch.
megalocera Weise
26. **D. aequalis** Say
confusa Lac.
27. **D. dissimilis** n. sp.
28. **D. rufa** Say
tuberculata Lac.
rutila Melsh.
29. **D. pubicollis** Suffr.
pubicollis//Crotch

Subgenus Poecilocera Schffr.

30. **D. harrisi** Lec.

Subgenus Plateumaris Thoms.

31. **D. sulcicollis** Lac.
metallica//Say
affinis//Kirby
kirbyi Lac.
jucunda Lec.
rufa Leng
32. **D. flavipes** Kirby
chalcea Lac.
v. **shoemakeri** n. var.
v. **lodingi** n. var.
33. **D. nitida** Germ.
binodosa Lec. not Germ.
34. **D. notmani** n. sp.
35. **D. emarginata** Kirby
junci Coup.
v. **pacifica** n. var.
v. **frosti** n. var.
36. **D. metallica** Ahrens
femoralis Kirby
cataractae Newm.
parva Lac.
nana Melsh.
indica Melsh.
femoralis Lec. (female)
gentilis Lec.
37. **D. germari** Mann.
aurifer Lec.
dives Lec.
femoralis Lec. (male)
femoralis Leng (pars)
serricauda Schffr.
v. **flavipennis** Mann.
38. **D. diversa** n. sp.
harrisi Blatch.
39. **D. fulvipes** Lac.
cuprea Lec.
pusilla Leng (pars)
40. **D. pusilla** Say
rugifrons Newm.
pusilla Leng (pars)
v. **pyritosa** Lec.
v. **robusta** Schffr.
41. **D. wallisi** n. sp.
aurifer var. Lec.
42. **D. dubia** n. sp.
43. **D. neomexicana** n. sp.
44. **D. longicollis** n. sp.
femoralis Leng (pars)
45. **D. vermiculata** n. sp.

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Haemonia Latreille.

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   melsheimeri Lacordaire, Mon. Phyt., p. 211.
   var. **flohri** Jacoby, Stett. Ent. Ztg., vol. 45, p. 126.

Donacia Fab.

Subgenus Donacia Fab.

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   floridae Leng, Trans. Am. Ent. Soc., vol. 18, p. 166.
2. **D. piscatrix** Lacordaire, l. c., p. 113; Leconte, Proc. Acad. Nat. Sc., Phil., vol. 5, p. 311; Leng, l. c., p. 169; Blatchley, Col. Ind., p. 1102.
   carolina Lac., l. c., p. 114; Suffrian, Stett. Ent. Zeit., 1872, p. 14.
   cuprea Melsh., Proc. Acad. Nat. Sc., Phil., vol. 3, p. 158.
   alutacea Leconte, l. c., p. 111.
   var. **congener** Lec., l. c., p. 310.
3. **D. palmata** Olivier, Ent., vol. 4, p. 8, pl. 1, fig. 7a–c; Kunze, Mon., p. 43; Schönherr, Syn. Ins., vol. 2, p. 96; Lacordaire, l. c., p. 98; Leconte, l. c., p. 310; Leng, l. c., p. 168; Blatchley, Col. Ind., p. 1102.
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   var. **minor** n. var.
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6. **D. hypoleuca** Lacordaire, l. c., p. 101; Leconte, l. c., p. 311; Leng, l. c., p. 168.
7. **D. edentata** Schaeffer, l. c., p. 312.
8. **D. parvidens** Schaeffer, l. c., p. 311.
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lucida Lac., l. c., p. 106; Leconte, l. c., p. 310.
var. **tryphera** n. var.
var. **antillarum** Suffrian, Arch. f. Naturg., vol. 32, p. 282.
var. **rufipennis** Lacordaire, l. c., p. 110.
pulchella Lec., l. c., p. 312.

10. **D. proxima** Kirby, Fauna Bor. Am., vol. 4, p. 225; Lacordaire, l. c., p. 202; Leconte, l. c., p. 310; Leng, l. c., p. 167; Blatchley, l. c., p. 1102; Schaeffer, l. c., p. 309.
var. **californica** Leconte, l. c., p. 357; Schaeffer, l. c., p. 310.
11. **D. caerulea** Olivier, Ent., vol. IV, p. 10, pl. 2, fig. 10a, b.
episcopalis Lac., l. c., p. 105; Schaeffer, l. c., p. 309.
12. **D. magnifica** Leconte, l. c., p. 310; Leng, l. c., p. 168; Blatchley, l. c., p. 1102; Schaeffer, l. c., p. 310.
13. **D. hirticollis** Kirby, l. c., p. 226; Lacordaire, l. c., p. 203; Leconte, l. c., p. 313; Leng, l. c., p. 164.
rudicollis Lac., l. c., p. 108.
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17. **D. assimilis** Lacordaire, l. c., p. 153.
glabrata Schffr., l. c., p. 313.
18. **D. porosicollis** Lacordaire, l. c., p. 150; Leconte, l. c., p. 312; Leng, l. c., p. 170; Blatchley, l. c., p. 1104.
19. **D. biimpressa** Melsheimer, Proc. Acad. Nat. Sc., Phil., vol. 3, p. 159.
aurichalcea Melsh., l. c., p. 159.
torosa Lec., l. c., p. 313; Leng, l. c., p. 172; Blatchley, l. c., p. 1105.
distincta Leng, l. c., p. 171, Blatchley, l. c., p. 1104.
var. **limonia** n. var.
20. **D. distincta** Leconte, l. c., p. 313.
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aenea Ahrens, Mon., p. 21.

confluenta Say, l. c., p. 293; Lacordaire, l. c., p. 199.
aequalis Kirby, l. c., p. 227.
aerea Lacordaire, l. c., p. 148.
confluens Leconte, l. c., p. 312.
var. **fulgens** Leconte, l. c., p. 312.

22. **D. tuberculifrons** Schaeffer, l. c., p. 315.
23. **D. vicina** Lacordaire, l. c., p. 154.
24. **D. liebecki** Schaeffer, l. c., p. 314.
pallipes Lac., l. c., p. 149 (name preoccupied).
25. **D. megacornis** Blatchley, l. c., p. 1103; Schaeffer, l. c., p. 313.
megalocera Weise, Wiener Ent. Zeitsch., vol. 32, p. 18.
26. **D. aequalis** Say, l. c., vol. 3, p. 428; Lacordaire, l. c., p. 197; Suffrian, l. c., p. 15; Leng, l. c., p. 170; Blatchley, l. c., p. 1104.
confusa Lac., l. c., p. 109; Leconte, Agass. Lake Sup., p. 237.
27. **D. dissimilis** n. sp.
28. **D. rufa** Say, l. c., vol. 5, p. 198; Lacordaire, l. c., p. 198.
tuberculata Lacordaire, l. c., p. 155; Leconte, l. c., p. 312; Leng, l. c., p. 171.
rutila Melsh., l. c., p. 159.
29. **D. pubicollis** Suffrian, l. c., p. 21; Crotch, Proc. Acad. Nat. Sc., Phil., vol. 25, p. 21; Leng, l. c., p. 170; Blatchley, l. c., p. 1100.

Subgenus POECILOCERA Schaeffer.

30. **D. harrisi** Leconte, Proc. Acad. Nat. Sc., Phil., vol. 5, p. 316; Crotch, Proc. Acad. Nat. Sc., Phil., vol. 25, p. 20; Leng, Trans. Am. Ent. Soc., vol. 18, p. 172.

Subgenus PLATEUMARIS Thomson.

31. **D. sulcicollis** Lacordaire, Mon. Phyt., p. 186.
metallica Say, Journ. Acad. Nat. Sc., Phil., vol. 5, p. 283.
affinis Kirby, Fauna Bor. Am., vol. 4, p. 224; Lacordaire, l. c., p. 201.
kirbyi Lacordaire, l. c., p. 202.
jucunda Lec., Proc. Acad. Nat. Sc., Phil., vol. 5, p. 315.
rufa Leng, Trans. Am. Ent. Soc., vol. 18, p. 175; Blatchley, Col. Ind., p. 1107.
32. **D. flavipes** Kirby, l. c., p. 223; Lacordaire, l. c., p. 201; Leconte, l. c., p. 315; Leng, l. c., p. 174; Blatchley, l. c., p. 1106.
chalcea Lac., l. c., p. 188.

var. **shoemakeri** n. var.
var. **lodingi** n. var.

33. **D. nitida** Germar, Neue Schrift. Ges. Halle, vol. 1, p. 31; Lacordaire, l. c., p. 195.
binodosa Lec., l. c., p. 316 (not Germar).

34. **D. notmani** n. sp.

35. **D. emarginata** Kirby, l. c., p. 224; Lacordaire, l. c., p. 202; Leconte, l. c., p. 314; Leng, l. c., p. 174; Blatchley, l. c., p. 1106.
junci Coupez, Trans. Lit. and Hist. Soc., Quebec, n. s., pt. 2, p. 88.
var. **pacifica** n. var.
var. **frosti** n. var.

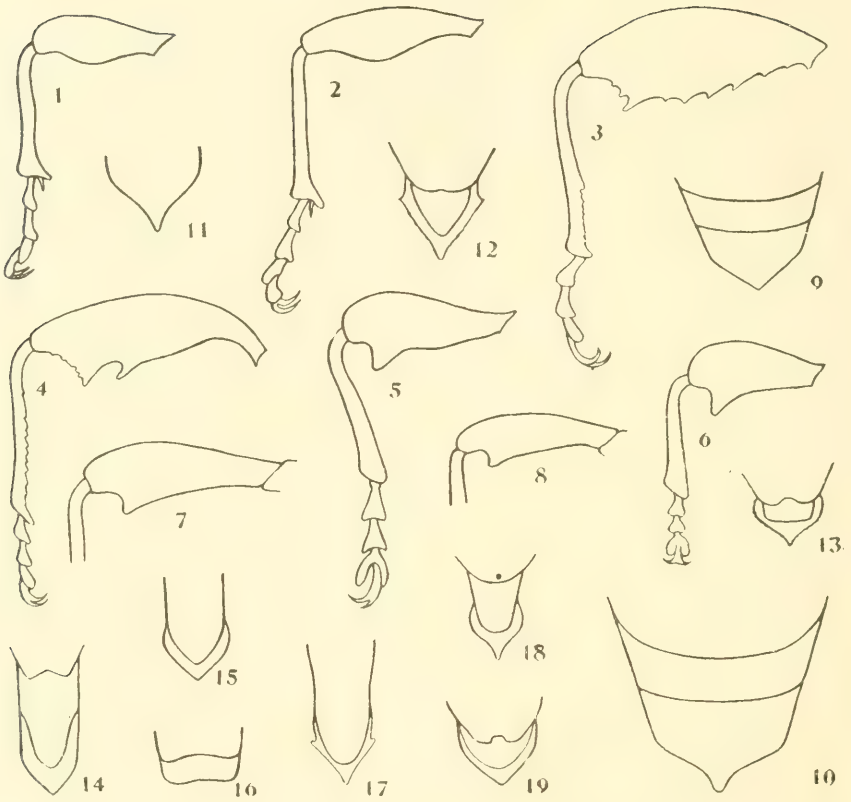
36. **D. metallica** Ahrens, Mont., p. 33; Germar, l. c., vol. 6, p. 33; Kunze, Mon., p. 43; Lacordaire, l. c., p. 189; Leconte, l. c., p. 314; Leng, l. c., p. 174; Blatchley, l. c., p. 1106.
femoralis Kirby, l. c., p. 223; Lacordaire, l. c., p. 200; Leconte, l. c., p. 315 (female); Schaeffer, Journ. N. Y. Ent. Soc., vol. 27, p. 318.
cataractae Newm., Ent. Mag., vol. 5, p. 391; Lacordaire, l. c., p. 200.
parva Lac., l. c., p. 190.
nana Melsh., Proc. Acad. Nat. Sc., Phil., vol. 3, p. 160.
indica Melsh., l. c., p. 158.
gentilis Lec., l. c., p. 314.

37. **D. germari** Mannerheim, l. c., p. 306; Lacordaire, l. c., p. 191.
aurifer Lec., l. c., p. 313.
dives Lec., l. c., p. 314.
femoralis Lec., l. c., p. 315 (male); Leng, l. c., p. 173 (pars).
serricauda Schaeffer, l. c., p. 318.
var. **flavipennis** Mann., l. c., p. 306; Lacordaire, l. c., p. 193.

38. **D. diversa** n. sp.
harrisi Blatch., l. c., p. 1105.

39. **D. fulvipes** Lacordaire, l. c., p. 192.
cuprea Lec., l. c., p. 314.
pusilla Leng, l. c., p. 172 (pars).

40. **D. pusilla** Say, l. c., p. 293; Lacordaire, l. c., p. 199; Leconte, l. c., p. 314; Leng, l. c., p. 172.
rugifrons Newm., l. c., p. 391; Lacordaire, l. c., p. 200.
var. **pyritosa** Lec., Rep. Surv. Pac., vol. 9, p. 66; Leng, l. c., p. 173.
var. **robusta** Schaeffer, l. c., p. 318.



DONACIINI.

41. **D. wallisi** n. sp.
    aurifer var. Lec.
42. **D. dubia** n. sp.
43. **D. neomexicana** n. sp.
44. **D. longicollis** n. sp.
    femoralis Leng, l. c., p. 173 (pars).
45. **D. vermiculata** n. sp.

EXPLANATION OF PLATE V.

FIG. 1. Middle leg of female of *Donacia piscatrix* Lac. (internal view to show the tooth-like prolongation of tibia).
FIG. 2. Middle leg of female of *Donacia palmata* Oliv. (internal view to show the tooth-like prolongation of tibia).
FIG. 3. Hind leg of male of *Donacia harrisi* Lec. (internal view).
FIG. 4. Hind leg of male of *Donacia militaris* Lac. (internal view).
FIG. 5. Hind leg of male of *Donacia flavipes* Kirby (internal view).
FIG. 6. Hind leg of male of *Donacia sulcicollis* Lac. (internal view).
FIG. 7. Hind femora of *Donacia diversa* n. sp. (internal view).
FIG. 8. Hind femora of *Donacia germari* Mann (internal view).
FIG. 9. Last two ventral segments of female of *Donacia palmata* Oliv.
FIG. 10. Last two ventral segments of female of *Donacia piscatrix* Lac.
FIG. 11. Vaginal plate of female of *Donacia pubicollis* Suffr.
FIG. 12. Vaginal plates and last dorsal segment of female of *Donacia diversa* n. sp.
FIG. 13. Vaginal plates and last dorsal segment of female of *Donacia germari* Mann.
FIG. 14. Vaginal plates and last dorsal segment of female of *Donacia emarginata* Kirby.
FIG. 15. Vaginal plates of female of *Donacia pusilla* Say.
FIG. 16. Vaginal plate and dorsal segment of female of *Donacia harrisi* Lec.
FIG. 17. Vaginal plates of female of *Donacia sulcicollis* Lac.
FIG. 18. Vaginal plates and last dorsal segment of female of *Donacia notmani* n. sp.
FIG. 19. Vaginal plates and last dorsal segment of female of *Donacia fulvipes* Lac.

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